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THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 94, No. 25 | 535 North Dearborn Street, CHICAGO, ILL. | JUNE 21, 1930

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.

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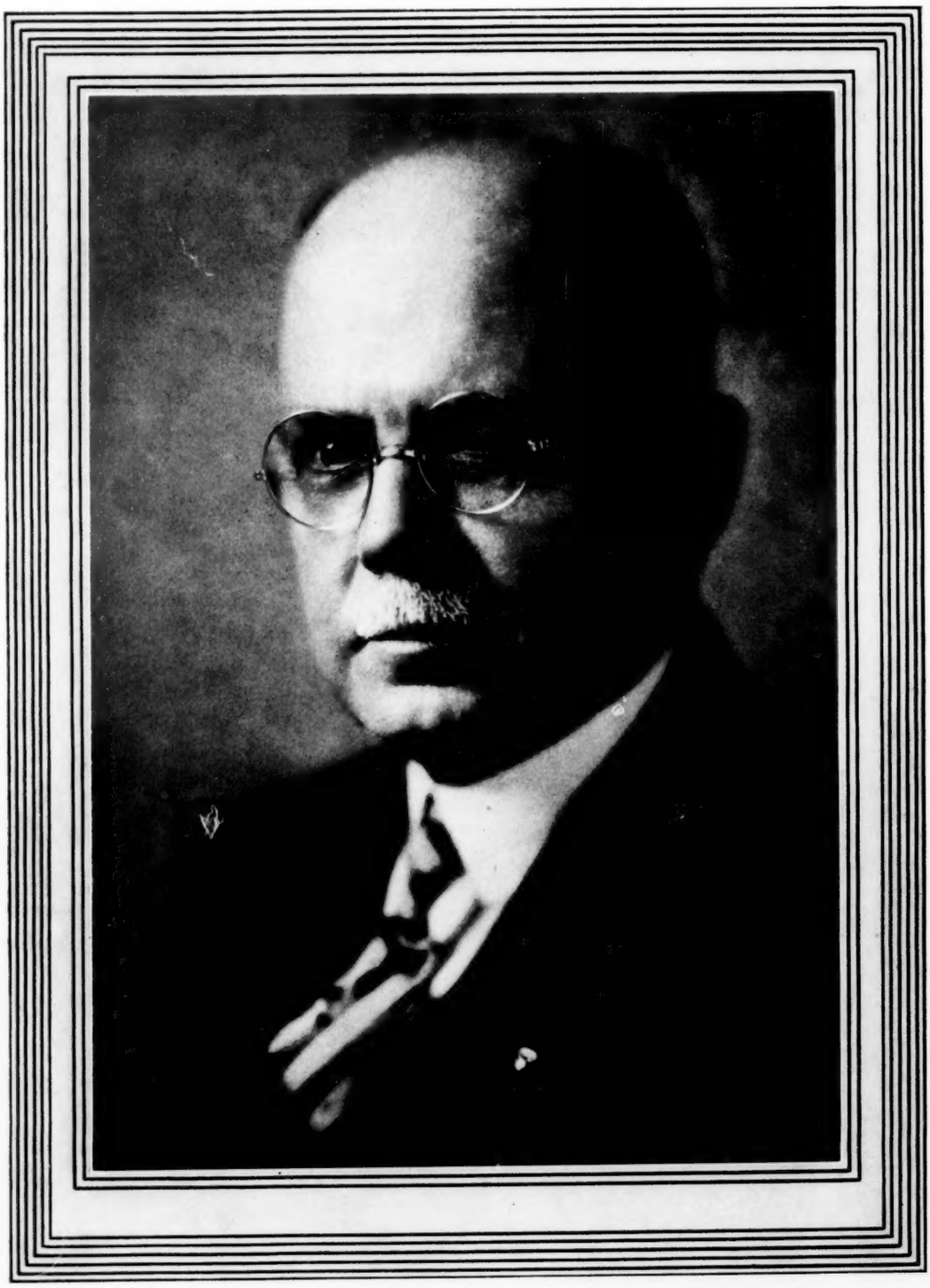

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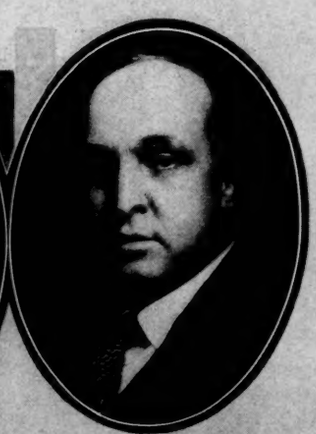

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 94, NO. 25 CHICAGO, ILLINOIS JUNE 21, 1930

INSULIN: ITS USE AND MISUSE*

NELLIS B. FOSTER, M.D.
NEW YORK

With the advent of insulin there were sound reasons to hope that the mortality from diabetes would show a definite decrease. This hope has not yet been realized. Mortality statistics for diabetes show a decided increase. While clinics and hospitals and specialists in this disease report a decrease in deaths, urban and state rates usually show increases or at best doubtful improvements. Why is this so? Does it mean that a valuable agent is being neglected? In an analysis of 1,800 cases of diabetes, the Metropolitan Life Insurance Company found that insulin had been used in 881, or only 49 per cent. Of those receiving insulin, 54 per cent were given insulin for the first time within a month of death. Why should this be so?

First of all there is in the medical profession a most astonishing fear of insulin. A great many physicians seem to be more afraid of insulin shocks than of diabetic coma. The somewhat undue emphasis of the effects of excess dosage contained in the leaflet that comes in each package of insulin is doubtless in part responsible for this timidity. And in general, are not physicians apt to be a little timid? What, for instance, was the early history of diphtheria antitoxin? And are we not something more than conservative toward any measure outside our experience—a little prejudiced, even? Physicians have told me that they didn't believe in insulin! Then, too, there have been chimeras, such as that insulin once begun can never be discontinued. Well, for children it cannot. Formerly diabetic children lived a year or two of miserable existence and then died in coma. Now there are hundreds, probably thousands, who look and act like normal children. There are also thousands of adults who have been carried over some exigency, formerly fatal to diabetic patients, as severe infections, operations, pregnancies or tuberculosis, by the use of insulin which was a dire necessity for a time but finally was not required. Can never be discontinued, once begun? One of my patients is an old gentleman who has retired from the lighter cares of life and devotes himself to science, the science of golf. His diabetic state is mild and during periods when no especial drain is made on his energy a reasonable diet fills all demands. But in that season when there must be energy and a zeal for real work, the starch ration goes up several notches and, with 40 or 50 units of insulin a day, I'm assured that drive and putt alike take on a form that needs no apology.

In many surgical conditions complicated by diabetes, insulin is needed during the preoperative and postoperative periods; but in the majority of cases the diabetic state is mild and insulin can be abandoned once convalescence is established. The improvement in the mortality in this class of cases is my answer to one who does not believe in insulin. For several years the death rate for surgical conditions complicated by diabetes at the New York Hospital has been practically the same as for these conditions not complicated by diabetes. That means that acidosis, coma, the spread of infections, inanition are preventable when insulin is used intelligently.

First of all, what is the intelligent use of insulin? The test obviously is the accomplishment of a desired aim. I shall consider primarily the management of acidosis, since this is the most critical complication that may arise and it may arise as a result of any infection, of any surgical disease, of indiscretion in food, of extreme physical exhaustion. In brief, there is no specialty in medicine in which the problem of diabetic acidosis is not likely to arise sooner or later. Chemically the immediate reason for acidosis is that so little dextrose is burned that the fat combustion also is imperfect. Fatty acids, which are normally oxidized to carbon dioxide and water, oxidize in acidosis only to diacetic acids, the ketone stage. Since this abnormal oxidation of fat is dependent on the failure of dextrose oxidation, two things are needed for its correction: (1) insulin, which will effect oxidation, and (2) dextrose to be oxidized.

These are basic principles. The details of application vary from case to case. There can never be a set routine appropriate to every case of acidosis, as the following instance illustrates:

A stoutish man, aged 42, was brought to the hospital on account of quinsy. His throat was much swollen, he could scarcely swallow, and there was, of course, fever. In the course of examination sugar was found in the urine, and when the patient was questioned about it he said that he had been following a diabetic diet for several years. The urine also showed a strong reaction for diacetic acid. Clinically there was no evidence of acidosis, but it was recognized that conditions were menacing and diabetic coma a logical sequel. Inability to take nourishment, a severe infection difficult to control, fever, all these favored acidosis. What was done appears in the accompanying tabulation. No attention was given to glycosuria in the beginning. Glycosuria is not fatal. Indeed, the attempt was made to administer enough dextrose that there might be a little in the urine in spite of heavy doses of insulin. The result of this procedure was the disappearance of ketones from the urine and a rise in the carbon dioxide combining power of the blood, indicating that the acidosis factor in this problem was under control. With fruit juices and cereal gruels for nourishment and from 60 to 70 units of insulin a day, the patient was tided over the febrile period.

* One of a series of lectures on the Treatment of Diabetes given at the Elizabeth E. Horton Hospital, Middletown, N. Y., in 1928.

Of course, the peritonsillar abscess was incised and eventually the diet was adjusted so that glycosuria disappeared and the blood sugar became normal.

The point I wish to emphasize is that in this case the main object was to control the acidosis; the glycosuria can wait. In order to control acidosis the surest procedure is to use insulin and dextrose. The amount of insulin required is variable. One should be sure to use enough. The urine should be tested every two hours during the period of intensive treatment; if there is sugar, insulin should be used; if none, dextrose may be given.

This general method is applicable in any complication of diabetes, when coma looms as a possible danger. It applies to those not uncommon emergencies which always arise in the middle of the night when laboratory data on blood sugar and so on are not available—in the patient with a neglected strangulated hernia who is rushed to the hospital at 2 a. m., and just as everything is ready in the operating room the junior intern reports happily that the urine is loaded with sugar and that there is a strong Gerhard's reaction, and plenty of albumin. Delaying the operation to permit time for the control of acidosis is not always possible. The thing to do in this sort of emergency is clear: to proceed with the operation and while the patient is on the table to give a good sized dose of insulin, 100 units perhaps,

Diabetic Record of a Patient Treated for Acidosis

Date	Hour	Food	Insulin, Units	Urine: Ferric Chloride	Urine: Nitro Prusside	Urine: Sugar %	Blood: Sugar	Blood: Carbon Dioxide per Cent by Volume
7	9 p. m.	Broth.....	25	++++	++++	++++	...	..
	12 a. m.	Pineapple juice....	25	++++	++++	++++	...	..
8	2 a. m.	Pineapple juice....	25	++++	++++	++++	...	..
	4 a. m.	25 Gm. of dextrose intravenously	25	+++	+++	++	...	..
	6 a. m.	25 Gm. of dextrose intravenously	25	++	+	+++	278	36
	8 a. m.	Pineapple juice....	10	+++	+	+	...	..
	10 a. m.	Pineapple juice....	0	+	+	trace	...	..
	12 m.	Oatmeal gruel.....	0	++	+	0	...	..
	2 p. m.	Oatmeal gruel.....	20	0	+	trace	...	..
	6 p. m.	Oatmeal gruel.....	0	0	+	+	...	..
	10 p. m.	Oatmeal gruel.....	10	0	+	0	...	..
9	6 a. m.	Tea and sugar....	20	+	+	++	...	..
	9 a. m.	Gruel.....	10	0	++	+	329	62
	12 m.	Gruel.....	20	0	+	+	...	..
	4 p. m.	Gruel.....	10	0	+	+	...	..
	8 p. m.	Gruel.....	10	0	+	++	...	..
10	4 a. m.	Gruel.....	10	0	+	+	...	..
	8 a. m.	Coffee, gruel.....	20	0	+	+	230	64
	12 m.	Gruel.....	20	0	+	+	...	..

half of it intravenously. This should be followed in an hour by an intravenous injection of 25 Gm. of dextrose, to be repeated hourly until samples of urine are obtainable. In one of these surgical emergencies last year (intestinal obstruction due to volvulus) from 400 to 600 units of insulin was used daily for five days to avoid coma. But the patient did not go into coma and recovered from the operation.

There is no difference in principle in the management of diabetic coma. The procedure is to give adequate amounts of insulin, and adequate amounts of dextrose, with attention first to the acidosis, letting the glycosuria wait.

With patients in coma there is one other consideration that may be of great importance; namely, dehydration. The patient may have taken little or no water for hours and the tissues are in consequence dried out. It is my practice to give saline solution by hypodermoclysis, at least 2 liters in the first twelve hours. I never give this intravenously because of the sudden burden it imposes on a doubtful heart.

Possibly I have laid unnecessary stress on the methods of treating acidosis, but experience forces me to the conclusion that in general available means of treatment are not yet being sufficiently used. There are too many deaths from diabetic coma.

The use of insulin in the ordinary case of uncomplicated diabetes is relatively simple. Why so many physicians seem to be afraid of insulin is beyond my comprehension. A normal person can take from 5 to 10 units of insulin with no notable effect. From 10 to 20 units a couple of times daily is an ideal way to stimulate the appetite. Recently I had a lad in my service in the hospital who went through a very severe siege of pneumonia, but after defervesence he was a physical wreck. He had no appetite; nothing tempted him. So he was given 20 units of insulin before breakfast and dinner and the result was miraculous. He became ravenous.

In the hospital I use insulin as a means of shortening the hospital period. It saves time to give a patient a maintenance diet and use insulin for a few days to clear up the urine and bring the blood sugar down to normal rather than to begin with a very low diet and then gradually raise it to maintenance level. This procedure is unnecessary when time is of no consideration.

The question is often asked: How do you know how much insulin is going to be needed? The answer is, you never do know; you find out by experiment. If one wishes to take the time, it is possible to get an idea of the approximate amount from the sugar in the urine. Suppose, for instance, that a patient has been on some definite diet formula for five days. Then he collects accurately a twenty-four hour specimen of urine and in this is found 60 Gm. of dextrose. One unit of insulin will care for about 2 Gm. of dextrose; then the patient requires roughly 30 units of insulin a day. A better method, it seems to me, is to start with 10 or 15 units of insulin before breakfast and direct the patient to test each voiding of urine during the day for sugar and to keep a record. Then by gradual increases of 3 or 5 units, first the morning voidings become clear of sugar and then one can determine whether a dose is also required before dinner at night or possibly some other time. This general procedure has, from my point of view, this consideration of paramount importance: The patient from the outset becomes instructed in the use of insulin; he is, as he must be for results, a collaborator in the experiment. He learns from the beginning to keep his urine free from sugar and how to do it. Later he is in a position to cope with the little episodes that are sure to arise, such as being out of sorts and not wishing a regular meal or a head cold causing sugar to appear, or a like result from tremors in the stock exchange.

From what I have already stated it can readily be inferred that I have no patience with the all too common custom of the physician administering the insulin. This plan never works, as no physician is in a position to keep an appointment at a definite time every day week on end. And there is no need for it. There is always some one in a family who can be taught how to give a hypodermic injection. Children of 10 years do it beautifully and are as meticulous about technic as a surgeon. Splendid teachers children are too. To impart the mysteries of a "nifty stunt" appeals to them, especially to girls.

It is a great mistake for the physician to carry the whole responsibility. As to plan and policy he has no alternative, but in execution the patient must have his part. A year or so ago a lad of 20 was brought to me for an opinion. He had severe diabetes and had been once in coma. His medical advice had been good, though he had had too many advisers. The patient understood his diet, the use of insulin and analyses of urine. He analyzed each voiding, telephoned his physician at least once a day, and overdid every suggestion in an effort to do as he was told. After giving this poor boy a searching cross questioning, it became apparent to me that he was doing nothing on his own responsibility, though he seemed capable if given an opportunity. My advice to him was to increase his diet gradually and increase the insulin dosage to meet the need; to test the urine at most twice daily, and to see his physician only when he could not work out his own problem. The patient's sister reported after three months that the boy had steadily gained in weight, had taken up basket-ball, and would not allow any member of the family to meddle with him. Occasional reports from the boy's physician indicate that not only is this patient's condition satisfactory but he now has a healthy attitude toward life in general.

There is a great deal of difference in the way diabetic patients react to physical exercise. It was noted long ago that, with many, exercise increases tolerance, as they used to say. On the other hand, some patients with severe diabetes will have glycosuria if they become only slightly fatigued. It would seem as though the natural insulin production for some is increased by exercise while for others it is diminished. In any case this is the way it works out practically. For the majority, probably, vigorous exercise short of fatigue is equivalent to a dose of insulin, and if the patient is taking insulin he must before exercise take more food or less insulin, else some symptoms of hypoglycemia may develop. I say may develop because these symptoms are by no means invariable even when the blood sugar is below 0.06 per cent. Some patients show what might be called a tolerance to hypoglycemia, while others are sensitive; and though some are hardly inconvenienced by the common mild symptoms, others become alarmed and hysterical. Sooner or later very few patients escape some symptoms of insulin shock, but the majority are unperturbed, even jocose, over these experiences.

Only one case in my experience presented a serious problem. The cause in this instance was traced finally to fatigue, but there was a period of doubt and bewilderment:

Mrs. F. F., in middle life, the mother of a family, developed diabetes in 1923 and used insulin from the beginning. Everything went well until about April, 1927. Then she began to have attacks the description of which sounded like petit mal. She said that things suddenly would become remote and unreal and that she could not talk. When the period passed she did not remember what had occurred. According to Mr. F. his wife seemed in a daze and looked as if she were going to faint. On one occasion Mr. F. took his wife from the dinner table and put her to bed. For the next two or three hours she lay in a half stupor, now and then asking a question or making a half articulate remark. Finally she roused and said that she had been asleep. None of these episodes was preceded by a sense of hunger, by sweating or by vertigo. In order that the problem might be studied, Mrs. F. entered the hospital again. The diabetic state seemed in every way under satisfactory control. The insulin dose was at this time 65 units daily (40 in the morning and 25 in the evening). Samples of blood taken at various times during the day showed the sugar content to vary from 0.09 to 0.13 per cent. During the two weeks the patient was in bed she never had a symptom. Then it was suggested that she use the hospital as a hotel. She walked and shopped, made calls, and went to the theater. Nothing happened. For two months after leaving the hospital there was not a symptom. In the autumn there was much for Mrs. F. to do, getting the children fitted out for school and so on; she lost 4 pounds (1.8 Kg.), and said that she was a bit tired. The next week she had an attack at dinner one evening. She was advised to take an orange at 11 o'clock and never to omit tea in the afternoon when she felt tired or had done a good deal. The attacks have not recurred.

Sometimes this syndrome now generally called insulin shock takes a most bizarre expression. The following account was written by a patient who is an industrial chemist by vocation and a dramatist by avocation. (He has had a play produced, so I dare not edit his manuscript, nor does it need it.)

Then came a day when I felt that I ought to clean up our share of the beach. I worked at this for an afternoon, came home wearied and after supper went for a short stroll with the three children. When the moment came for our return—about 7—somehow I could not order myself to return. Instead, I was in a sort of hazy, half-imagined, half-real world. I was possessed with a sudden release from all fatigue and with an overwhelming desire to leap and shout. That comprised acting like a damn fool and I knew it, but I could not restrain the impulse. I surprised and amused the children by tossing them into the air and deftly catching them again. I was drunk with an indescribable excess of physical strength and an utterly uncontrollable urge to use it. Darkness was upon us when at last I managed somehow to turn my unwilling feet homeward. Mrs. R. sensed something awry upon our arrival but could not decide just what was wrong. She put the children to bed and then came down to me in our living room. I was lying upon a couch, trying with my oddly muddled brain to fathom it all. Suddenly I was seized with the impulse to fling my glasses through the wall of the house, to leap up and pull the fireplace to pieces, to toss the furniture like so much straw through the roof—anything to give vent to the throbbing power which surged mightily through my muscles. With bursts of shouts and laughs and grunts I wrestled with the house and its appointments, finally flinging myself through the door and down the lawn toward the sea. Mrs. R., terror-stricken, followed and when she came to quiet me I seized her and with the affectionate gentleness of a bear nearly squeezed the life out of her. I knew she was terribly frightened; I wanted to reassure her; but merely to attempt reassurance was to set off again the rush of uncontrollable power within me. At last, somewhat exhausted, in a lull between the onsets, I lay again on the couch and she managed to get sugar and orange juice into me. That ended the show.

I have described this first shock in some detail because all of its successors have been like it—only the setting has been changed. I have had this type of shock while at bridge with friends when my sudden blood-curdling burst of grunts so startled them that some could not remember seeing me hurdle the bridge table. I have had them on such occasions as Christmas Eve after the Santa Claus job at the tree was done and exhaustion was upon me—when I had gone to put coal on the furnace for the night and instead threw the coal all over the cellar and tried to beat my shovel into a plowshare. I have had them in the middle of a quiet evening of reading—suddenly upon me and hell let loose. Upon one occasion I had one directly after another. To check the first I ate among other things two tablespoonfuls of sugar and a large quarter of a highly sweetened blueberry pie. Twenty minutes later the shock had returned.

The symptoms of the approach of this type of shock have been in my case: (1) failure of my eyes to retain focus when reading and inability to grasp what is being read; (2) a deep depression—vague and unaccounted for by any known facts of experience coupled with the bitter desire to seek its

cause; (3) in conversation, the sudden loss of "the thread of the discourse"—either leaving a thought unfinished or eventually completing it after long pauses or jumping from one intervening subject to another—a dead giveaway to my wife, who knows my way of speech; (4) when speaking calmly upon any dull subject or otherwise, the sudden desire to burst into loud gustos of vocal volume, usually resulting in sounds such as might come from a speaker who had been violently and repeatedly slapped upon the back. The final signal before the storm is a sudden welling up to the bursting point of a torrent of physical power which seeps through and unleashes itself from all control—there is no mastering this; I have deliberately tried it, whipping my will to check the torrent, but I have never succeeded; the unintentional pressure of my fingers upon the arm of my chair may be the spark; my fingers leap to the grip and away through me speeds the energy, while my fingers are trying to crush the wooden arm; and in this flood of muscular energy the facial muscles, also, are touched to try their best to twist and stretch.

As I have told you before, when I first enjoyed this novel experience, my sole worry was concerned with the state of my brain. I feared that somehow I was surely going mad.

These two cases are of interest because of the peculiar manifestations caused by hypoglycemia and possibly some other effect of insulin not yet clearly understood. They are cited here because they are the only instances coming under my own observation of distressing effects—only two cases out of hundreds.

As I have mentioned, physical exertion in severe diabetes decreases the utilization of dextrose. Usually this is noticeable only in a transient glycosuria. In one of my patients the reaction was so severe that coma developed:

R. T., who had had severe diabetes since boyhood, in the summer of 1927 was with his family at a resort near New Haven, Conn. His favorite sport is motor boating. One day he dismantled the engine of his boat, starting this task early in the morning and working hard all day. In his eagerness to get finished he ate a scanty lunch and may have forgotten one dose of insulin (from 20 to 25 units). After dinner he was very tired and went to bed directly. About 10 o'clock his father went to his room to reassure himself before retiring. The character of the respirations alarmed the father and a physician was summoned. The boy was in coma. He was taken to the University Hospital in New Haven and under the care of Dr. John Peters made a prompt recovery.

If I were asked to sum up in three words the treatment of diabetes, my answer would be: precision, individualization, boldness.

850 Park Avenue.

Leonardo the Artist and Anatomist.—Along with the revival of learning there was also a renaissance of art. Some of the great Renaissance artists—Michelangelo, Raphael and Dürer among them—began to study the human form very closely. They soon found that to represent it accurately some knowledge of anatomy, and especially of the bones and muscles, was needed. The artists, therefore, began also to dissect. Among these great artists were some who took more than a purely artistic interest in the structure and workings of the body. Of these the most important for us was Leonardo da Vinci (1452-1518). He was a man of enormously powerful and inquiring mind, and his achievements in science are at least as remarkable as his works of art. He had determined to write a textbook of anatomy and physiology. Though he did not publish it, many of his beautifully illustrated notebooks on these subjects have survived. Leonardo was the first to question the views of Galen. He made careful first-hand investigations on the bodies of men and animals, and performed many physiological experiments. Though a man of the most lofty genius, centuries ahead of his time, yet his outlook is, in many respects, typical of his age.—Singer, Charles: A Short History of Medicine, Oxford, 1928, p. 83.

FOODS AND DIETS IN DIABETES*

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Some may recall what a simple matter the arrangement of a diabetic diet used to be. It was built up on the "can take" and "cannot take" principle. Occasionally even now some patient will exhibit a printed slip, worn and frayed (usually the sort furnished in pads by pharmaceutic industries). This sort of diet regulation scorned all the pother of tolerances and tests which was the exuberant growth of the next decade. But following Naunyn there was a reluctant consent that diabetes was not just diabetes; there were evidently differences in the intensity of the disease which must be compensated for in various food adjustments. Some doubtless recall von Noorden's elaborate tables of equivalents based on comparison with bread.

But the basic principles in all these diets were set forth by Rollo in the eighteenth century: to wit, an excess of meat and a scant ration of starch. In recent times we have been advised to try diets low in protein and fat, which amounts to undernutrition; again low in protein and rich in fat, which was a comfort to some. Then came insulin and a sweet forgetting of the lean days and fast days. But dogmas are slow to be abandoned even in the face of facts. There were those and there still are who advocated a bygone form of diet even when insulin is used and in face of the fact that any diet combination can be adjusted to diabetic deficiency by means of insulin. And there are but few exceptions to the rule that in this climate healthy people by choice eat largely of starchy foods, moderately of protein and fat. That is our racial appetite. It is a preference to which we can nowadays give a just consideration. Formerly, before insulin was available, we did the best we could and patients with diabetes endured in order to survive.

One hears of a maintenance diet. A maintenance diet is a result of mathematical calculation; it is not necessarily adequate to the needs of active living and it disregards psychology entirely. However, there is a certain definite and restricted use for this calculation. It gives some guide as to where to begin and admittedly one must begin somewhere. If by estimating a patient's basal metabolism it is found that this is normal and is equivalent to, say, 1,650 calories for twenty-four hours, then one knows that this person requires about that amount of food while at rest and more if he is up and active. An approximation to this theoretical requirement can be reached by estimation on the basis of 30 calories per kilogram of body weight, or about 14 calories per pound.

If, for example, the patient under consideration needs at least 1,650 calories of energy in food, the next thing to consider is how this food shall be distributed as carbohydrate, protein and fat. The patient weighs 120 pounds, or 55 Kg. While it is true that an adult can live on less than 1 Gm. of protein per kilogram of body weight, it is also true that a wide variety of amino-acids is necessary to health. Therefore, it seems to me to be much safer to be liberal. One gram per kilogram allows a safe margin. The protein factor will then be 55 Gm. daily. A gram of protein is equivalent to 4 calories, 55 Gm. to 220 calories, which subtracted from 1,650 leaves 1,430 calories to be divided between carbohydrate

* One of a series of lectures on the Treatment of Diabetes given at the Elizabeth E. Horton Hospital, Middletown, N. Y., in 1929.

and fat. If 1,430 is divided by 17, the quotient is 97, representing the grams of carbohydrate required. This leaves 1,042 calories for fat ($97 \times 4 = 388$; $1,430 - 388 = 1,042 \div 9 = 116$). The diet formula then is: carbohydrate 97, protein 55, fat 116. This is purely a maintenance diet—a place to start. It will support life, and we have to start somewhere.

If this diet is given to the patient for several days, one of two things will happen: the glycosuria will vanish or it will not vanish. If sugar disappears from the urine, this indicates a relatively mild diabetic state which possibly could have been surmised before from the nutrition of the patient. In such a case one need not do more until the blood sugar has fallen to normal, which will occur in the course of a few days. If, on the other hand, sugar does not disappear from the urine after a few days on the diet outlined, I would use insulin to hurry matters, beginning with 10 units before meals and increasing each dose by 5 units until sugar disappears from all specimens of urine voided half an hour before meals. After the insulin dosage is balanced with this diet, which means that all specimens of urine are free from sugar and that the blood sugar in the afternoon and evening as well as in the morning is normal, the next step is to find out whether this diet meets the patient's normal demands.

It is always advisable and in severe cases absolutely essential to train the patient to use scales in measuring his diet. If this is done from the start, much trouble and misunderstanding can be avoided. Diabetes is one disease in which mathematical precision is possible. Patients soon learn its value to them and the majority are gladly cooperative; they learn at the same time that success depends on them. First of all one should see that they are well taught, so that they understand how to use food charts, are able to make up food formulas, and can change the formula if exigency arises.

Every diabetic patient must understand his diet and how to test the urine for dextrose and diacetic acid.

In small communities where a dietitian is not available there is always some diabetic patient who is glad to earn an easy dollar by teaching another patient. If the first patient is thoroughly trained, the others will be.

To determine the adequacy of the diet prescribed, the patient should be allowed to continue his usual mode of life, with careful observations of his weight and of whether his strength is sufficient for his duties. This observation indicates whether the amount of food is adequate. If it is not, then it has to be increased and the insulin dosage readjusted. Not rarely it happens that a patient with rather mild diabetes does not become sugar free until insulin is used in considerable doses, 60 or 80 units a day, and then after an interval there develops a rapid increase in his own insulin production, notable in frequent, though usually mild, hypoglycemic reactions. It may be necessary to decrease each insulin dose by 10 or 15 units until finally none is used. It is seldom necessary to give more than two doses of insulin daily, morning and evening. In making the change from three doses a day to two, the best method is to reduce the noon dose by 6 or 8 units at a time and to divide the amount taken from the noon dose between the morning and evening doses, so that the number of units taken daily remains the same. This, however, will be considered more in detail later.

Many diabetic patients in middle life are definitely obese. In one sense, obesity is a good omen; the old aphorism that fat diabetic patients do well is another way of saying that the disease is mild or else there would have been loss in weight. But it is not easy to decide in many instances what a person should weigh—what his optimum weight is for energy and continued health. Standard weight charts are a rough guide but are not to be followed blindly.

Take, as an example, a patient whom I have observed for several years, a man now approaching 60 years of age. He weighs 272 pounds (123 Kg.) and is 5 feet 11 inches (180 cm.) in height. When he was in college in the pink of condition, his weight fluctuated around 215 pounds (97.5 Kg.). He was an athlete and has all his life taken far more exercise than the average, and even now he is astonishingly quick and agile despite his huge bulk. I know that this man has endured a self imposed martyrdom in an endeavor to keep his weight down. His father was obese, so was his mother and so is his brother, and whatever his appetite he eats less than the average. A reduction of 10 pounds (4.5 Kg.) was secured by drastic diets which could not safely be continued, and on a 2,500 calory diet, about adequate for 200 pounds (90.7 Kg.), his weight returned to 276 pounds (125 Kg.).

While these individuals baffle theory and are wholesome corrections of any thumb rules, it is still true that it is desirable, in the interest of health and a sense of well being alike, to endeavor to mitigate somewhat the onus as well as the impediment of being fat. There are but two ways open: to prescribe a diet somewhat under actual need and to increase the patient's physical work. And in formulating as well as in carrying out any plan of this kind, good sense is a better guide than any theory. Better call the basic idea not a theory but an hypothesis; it's easier to change it. In my opinion it is better to be serene and happy even though fat than to pay for a few empty years of existence by depressing care of a body, for we are never sure that this is the alternative anyway.

One basic fact in metabolism has to be kept in mind when planning reducing diets. The patient's excess fat will decrease because it is called on to supplement an inadequate diet. This means that the patient is actually on a high fat diet; therefore if acidosis is to be avoided the carbohydrate ration must not be too low, though fat may be cut to the lowest practical minimum.

So far in considering diet I have had in mind the adult patient. No concessions have been made to the needs of growth which a child demands. Growth first of all requires more food, more calories, and especially more protein. While experience indicates that 1 Gm. of protein per kilogram of body weight suffices easily for a majority of adults, 2 Gm. is not too much during the growth period, and some children seem to thrive best on even more. The total food allowance must be increased as well. It may be recalled that some years ago Dr. Lusk made a study of the food consumed by boys in a well known preparatory school. The conclusion from that study was that a boy eats about twice as much as his father. It is not possible to give a mathematical rule for general guidance, but the end to be attained is normal weight and normal stature and this is easily attainable.

Bony growth requires lime. The calcium content of the common adult diet is very low. Therefore milk is a necessity in the ration of a healthy child. A quart of milk can easily be made a part of the ration of a diabetic child nowadays, since with insulin the milk sugar causes no obstacle. Still, considering mineral requirements and no less the vitamins, raw fruits and green vegetables must also be included. Fruit juices,

tomato juice, the leafy vegetables, carrots, specific fats, such as butter and cod liver oil, each furnish some element essential either to growth or to health.

At times the construction of a diet formula has to be far from conventional, as illustrated in the following case:

Sally V., a patient of Dr. F. I. Krauss of Chatham, N. J., developed diabetes in 1924, when she was 13 months old. Because the child had had difficulty in digesting whole milk, the formula given in the accompanying table was used for several months.

Feeding Formula for Diabetic Infant

		Protein	Carbohydrate	Fat
Protein milk	500 cc.	16	10	10
Egg	1	6	0	6
Orange	1	0	6	0
Cod liver oil		0	0	25
		22	16	41

This child, now 6 years old, is normal in height and weight for her age and, except for the diet and insulin, lives the life of a normal child.

Among civilized peoples cooking has always held a high place in the arts, and there are strong indications that one day it will be a science. Little as we know today about nutrition and the preparation of foods, we do know that cooked greens may have lost all their peculiar qualities in cooking, even though the esthetic verdure is preserved. Vitamins are largely destroyed by heat, especially under full exposure to the air, and the pot water containing most of the mineral salts too often is discarded. Steam pressure cooking, it would seem, is the proper way. On this account some canned vegetables are more wholesome than the fresh article prepared at home, because the cooking of the canned vegetable is done after the tin is sealed.

Of commercial diabetic foods there is no end. A few, such as fruits preserved without added sugar, have a limited usefulness. Many of these novelties, especially the endless varieties of breads and biscuits, are at best harmless and a majority are palpable frauds. No one ever succeeded in making a bread that tastes like bread out of substitutes for flour. And there is no need now why a man should persecute himself by trying to eat a slice of some soggy, heavy, tasteless loaf in the delusion that he is the better for thus mortifying the flesh. Far better for him physically, and transcendently better for him mentally and morally, to eat real honest bread, figure the cost in starch and pay in units of insulin. Some years ago when insulin therapy first became established on a practical basis, a generous woman gave a considerable sum of money to start a fund so that insulin would be available to the poor. The miraculous effect of insulin as it appeared to this woman had been in the transformation of the atmosphere of her own home, where haggling exactions and hungry suspicion had been replaced by something of content and serenity. And what I have just said expresses my philosophy about the amount of food a person requires. There is no doubt that a diet may be adequate to preserve life indefinitely and yet be inadequate for that margin of surplus energy which is the essence of human living. Mere weight does not indicate the difference. For each one of us there seems to be an optimum weight, and in my opinion this figure has no necessary relation to standard weight for age and height which so many people now seem to regard as axiomatic truth. There are people who are obese because of primitive appetites and primitive digestions and because food is now abundant. Also there are those who are obese for more obscure reasons as yet unknown. Some there are of tense nervous organizations who are thin in spite of adequate food. Horsemen speak of horses of this sort as "hard to keep." If we are clinicians and not mere specialists we will recall that for the person of overdrawn nervous organization a state of moderate overnutrition is much better than undernutrition.

There are so many considerations that I find myself impatient with attempts to generalize about diet in diabetes. I never treat diabetes; I attempt to treat a person. If we cease to generalize and strive more and more to adapt methods to each individual, without prejudices, with precision, and with careful observation, we can usually attain a fair approximation toward the aim of increasing our patient's health to the extent that he behaves like a normal man.

Practical experience and medical literature constantly remind us that arteriosclerosis is a common complication of diabetes; some believe that diabetes induces sclerosis of the arteries, though the mode of this is not clear. A few have convinced themselves that the diets employed in the therapy of diabetes in the past are directly responsible for vascular hypertension and vascular sclerosis. It is suggested that the old diets may induce disease in either one of two ways. First, the excessive amounts of fat in the older diet possibly tend to lipemia. According to Aschoff's hypothesis, the initial lesion in arteriosclerosis is an infiltration of the ground substance of the intima by plasma. If the plasma were laden with lipoid, the effect would be particularly pernicious. This is the theory, and it is quite speculative and hangs on several assumptions. It has been claimed that a type of vascular change may be produced by feeding an excess of fat and thus elevating the cholesterol content of the blood. In practice it has been customary to judge lipemia by the cholesterol content of blood. Cholesterolemia and lipemia are most marked, as every one knows, in severe diabetic acidosis. It is also often notable that in severe diabetes this lipoid is higher than normal. Just how this abnormality is produced or what it signifies is obscure or completely hidden. We know that it is one of the changes that accompany inanition, and also quite a few diseases (notably nephrosis). Taken at face value, does the evidence point to an excess of fat as the cause of trouble or to a lack of carbohydrate in proportion to fat?

The second hypothesis in relation to arteriosclerosis is based on the fact that the ash of some foods is alkaline while that of others is acid. It has been said that when experimental animals are fed on foods of the acid-ash type they develop chronic interstitial nephritis and high blood pressure and at autopsy the blood vessels show arteriosclerosis. If one is impressed by this evidence and feels that experiments of this sort are applicable to disease in man, then not only diabetic patients but all of us should see to it that our food is dominantly of the alkaline-ash type; that is, vegetables, fruit and milk. Meats, fish, eggs, cereals and bread have an acid ash.

Arteriosclerosis is the largest problem in the realm of disease. Vascular diseases are the commonest causes of death. As yet its causation is speculative. The theories and experiments I have summarized do not impress me personally, first, because I am impressed with no experiment in metabolism when a rabbit is the animal employed, as its own metabolism is too peculiar

to permit deductions applicable to other animals. Secondly, there are races in the world who on account of religious tabus have lived for ages on vegetarian diets and according to competent observers degenerative diseases such as chronic interstitial nephritis and arteriosclerosis are noticeably common among them. Thirdly, I see definite evidence of arteriosclerosis in the second and third decades of life often enough to make me skeptical of any theory that ascribes the causation of this disease exclusively to food.

Skeptical as I am about theories, I am willing to be guided by careful observation if it accompanies broad experience. In two types of arteriosclerotic complication—retinitis and circumscribed gangrene of the feet—it is possible to study results of different modes of treatment with some exactness. In both these conditions it has seemed to me that the results are better and prompter when the patient's diet is high in starch and low in both protein and fat. Liberal doses of insulin are of course necessary. Myocardial and renal degenerations are probably due to the same sort of vascular lesion as those we see in the retina, but results are here so difficult to estimate, in any case so variable, that the influence of this type of diet is dubious.

There is reason to believe that regeneration of liver cells is promoted by a starchy diet and delayed by one rich in protein. In cases of cirrhosis of the liver complicating diabetes, this principle has been utilized with rather surprisingly good results.

In the preoperative and postoperative periods when the disease requiring surgical intervention is complicated by diabetes, correct judgment as to modes of nourishment often determines whether the patient lives or dies. First of all, because of the nature of the disease or of vomiting, no food can be given by mouth. The fasting man burns chiefly fat, the less essential tissue. But when the diabetic person burns chiefly fat, acidosis results. This is why coma was formerly so common a result of serious surgical operations. About 100 to 150 Gm. of sugar must be metabolized daily to prevent acidosis. If this cannot be taken by mouth, dextrose must be given intravenously. From 20 to 40 Gm. of dextrose every two or three hours with adequate insulin will prevent clinical acidosis in any surgical state. But this dextrose must be burned to prevent trouble, and if it appears in the urine it is not being burned. I never give dextrose by hypodermoclysis; one cannot be sure of its rapid absorption and occasionally it seems to be irritating. It is better to give 25 to 50 per cent solutions directly into a vein. Intravenous nourishment is the only dependable method when one is confronted with acidosis, and acidosis is the chief hazard that confronts the surgeon. If he knows how to handle this problem, the rest can wait.

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Epidemic "Night Blindness."—Adults appear to require less vitamin A than the growing child, but it is essential that vitamin A should be present in the diet of the adult as a preventive of xerophthalmia and other troubles, especially lung diseases, due to a low resistance to infection. There is a form of "night blindness" which has been observed, often in an epidemic form, among older children and adults upon deficient diets. This trouble can be cured within twelve to twenty-four hours by cod liver oil. It is also cured by eggs, carrots and other foods rich in vitamin A. "Night blindness" is apparently merely an early stage of xerophthalmia before the cornea is very obviously affected.—Plimmer, R. H. A., and Plimmer, Violet G.: Food, Health, Vitamins, New York, Longmans, Green & Co., 1929, p. 53.

THE PROGNOSIS OF TETANUS*

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The extensive literature about tetanus, including data regarding mortality, prognosis and treatment, is difficult to interpret. The confusion and the indefiniteness of the statistics are largely due to the disregard of certain clinical tendencies of tetanus relating especially to the type of injury, the incubation period, the duration of the disease, the age of the patient and prophylactic inoculation.

Specific therapy for tetanus, i. e., tetanus antitoxin, has been employed in the active treatment of cases of tetanus for about thirty years. Even after this lapse of time, most diverse opinions prevail regarding the value of specific therapy and the methods of administering it in established cases of tetanus. There are 1,500 deaths from tetanus a year in the U. S. registration area. The most extensive summaries of cases of tetanus up to the onset of the World War were in the articles by Anders and Morgan in 1905,[1] Jacobson and Pearce in 1906,[2] and Hill[3] in 1911.

The prophylactic use of tetanus antitoxin during the war proved its value. The effect of the prophylactic administration of tetanus antitoxin on the prognosis of tetanus, when it occasionally develops after such administration, is summarized well by Bruce.[4] If the antitoxin was given within four days of the injury, the mortality was not more than 20 per cent among the few who developed tetanus at all; those receiving four or more prophylactic doses and then developing tetanus showed a mortality of only 7 per cent. There were relatively few such cases. These multiple prophylactic injections markedly prolong the incubation period, if tetanus develops at all. Consequently, the mortality rate of tetanus in the World War, as indicated by the statistics of Bruce, Dean,[5] Cummings, Gibson,[6] Ransom[7] and Golla[8] cannot be considered in this study because practically all of the patients had received prophylactic treatment.

The prognosis in cases following injuries by weapons of war when patients were not treated with tetanus antitoxin prophylactically or therapeutically can be determined from a study of a table made from Civil War statistics.[9] This reveals an average mortality varying from 86.8 per cent for injuries of the upper extremity to 95.2 per cent for injuries of the head, face and neck. The recoveries were chiefly in the slighter or more chronic cases, and the longer the incubation period, the greater the chance of life. The duration of the disease in 203 out of 358 cases did not exceed three days, and of these patients only two recovered.

These statistics cannot fairly be considered typical of tetanus in civil life because tetanus following gunshot and powder wounds has a notoriously high death rate.

* From the Pediatric Service of the Cook County Hospital.
* Read before the Chicago Pediatric Society, Nov. 19, 1929.

1. Anders, J. M., and Morgan, A. C.: Tetanus, J. A. M. A. **45**: 314 (July 29) 1905.
2. Jacobson and Pearce: Ann. Surg. **44**: 321, 1906.
3. Hill, E. W.: Tetanus, Arch. Int. Med. **8**: 747 (Dec.) 1911.
4. Bruce, D. L.: Lancet **1**: 680 (May 5), 986 (June 30) 1917; **2**: 413 (Sept. 15), 925 (Dec. 22) 1917; J. Hyg. **19**:1 (July) 1920.
5. Dean, H. R.: Lancet **1**: 673 (May 5) 1917.
6. Gibson, A. G.: Lancet **2**: 424 (Sept. 15) 1917.
7. Ransom, F.: Lancet **2**: 928 (Dec. 22) 1917.
8. Golla, F.: Lancet **2**: 966 (Dec. 29) 1917.
9. Medical and Surgical "History of the War of the Rebellion," part 3, Surgical History, p. 818.

Osler [10] says, regarding the prognosis of tetanus:

> Two of the hippocratic aphorisms express tersely the general prognosis: "The spasm supervening on a wound is fatal and such persons as are seized with tetanus die within four days, or if they pass these they recover." If the disease lasts beyond the tenth day, the patient has an even chance, and from this time the prognosis improves. The mortality is greatest in children . . . the failure of antitoxin in the treatment has often been due to insufficient dosage.

Zingher [11] states that the prognosis varies with the nature of the wound. Severe trauma associated with a short incubation period gives the highest mortality. Cases appearing late after an injury give a much better prognosis. The prognosis is rendered more favorable if the patient receives an early intraspinal injection of antitoxin. The prognosis in cases not treated with tetanus antitoxin is not as good as when early and prompt serum treatment has been instituted.

In this paper, 183 cases of tetanus treated at the Cook County Hospital during the past thirteen years are summarized. In order to establish any conclusions from these statistics, the age of the patient, the type of injury, the incubation period, the duration of the disease and the type of treatment must be considered in detail, with a discussion and criticism of the results of other investigators.

The mortality varied from 27 to 82 per cent yearly. There was no tendency toward a diminishing mortality in the later years. Seventy-eight per cent in 1917 does not differ much from 73 per cent in 1927 and 76 per cent in 1928. The annual number of cases was greater during each of the last seven years. The average mortality for the years 1917 to 1921 (inclusive) was 56.4 per cent in the forty-four cases, and for the years 1925-1929 (inclusive) it was 73.2 per cent in 85 cases.

The mortality according to age indicates that the highest mortality was between 1 and 5 years (83 per cent), while the lowest was between 5 and 10 years (34 per cent). The 10 to 15 year group and the adults averaged 65 per cent mortality. Anders [1] and Hill [3] state that tetanus between 1 and 5 years is comparatively rare, even though in this age group there are the most frequent falls, contusions and lacerations. In our group, twelve of the 183 cases occurred in children between 1 and 5 years of age. These investigators, as well as ourselves, find the greatest number of cases between 10 and 15 years. As only three cases of tetanus neonatorum were included in the series, conclusions cannot be drawn from the latter group, except that recovery occurs occasionally in the new-born.

There were five and a half times as many males as females. The usual figure given in statistics is four to one except in the tropics, where as many females as males are affected. Among the children under 15 years there were seventy-nine males to fifteen females. Either males are more susceptible to tetanus bacillus infection or the type of play engaged in by boys and the occupations of men increase the incidence of the type of injury predisposing to tetanus. A noteworthy fact is that in the tropics tetanus neonatorum affects as many male infants as female, but in the temperate zone twice as many male infants are affected as females. The average mortality among the males in our series was 63 per cent; the average incubation period was ten days and the average duration of the disease ten days. Among the females the average mortality was 50 per cent, the incubation period twelve days and the duration twelve days.

The type of injuries that preceded the most fatal forms of tetanus were bullet and powder wounds, the average mortality being 95 per cent and the average incubation period seven days; the least fatal were: lacerations, mortality 44 per cent, incubation period twelve days; splinter wounds, 41 per cent mortality, and postoperative cases, 45 per cent mortality. Of interest is the fact that the tetanus developing in three cases of frozen feet was 100 per cent fatal. Tetanus developing from nail wounds, a common type of injury, had a mortality of 66 per cent. In five cases of tetanus occurring after burns, the mortality was 80 per cent. The greatest number of cases followed lacerations, the mortality being only 44 per cent and the average incubation period twelve days.

Jacobson [2] also found the mortality from tetanus following lacerations comparatively low; in twenty-eight cases there was an average incubation period of twelve days with a mortality of 54 per cent; fifty-one puncture wounds showed an average incubation period of eight days and a mortality of 74 per cent; in fifty-two cases of tetanus following gunshot wounds there was an incubation period of seven days and a mortality of 78 per cent.

The relation of mortality to the site of the injury in our series reveals that in face and head injuries per se there does not necessarily develop a more fatal form of tetanus, the mortality in fourteen cases being 50 per cent and the average incubation period twenty-one days, while arm and leg injuries averaged nearer 61 per cent, with an average incubation period of ten days. Some investigators [2] have stated that the length of the incubation period depends on the distance the toxin must travel along the motor nerve from the site of the injury to the spinal cord, and consequently head injuries would have a shorter incubation period and a higher mortality. This was certainly not true in our group of cases.

TABLE 1.—*Recapitulation of the Effect of the Incubation Period on the Mortality*

Days	Number of Cases	Deaths	Per Cent
1- 5	38	32	84
5-10	53	44	83
10-14	35	13	37
2- 3 weeks	20	5	25
3- 4 weeks	6	2	33
1 month or more	10	1	10

Apparently, the most important factor in the prognosis of tetanus is the length of the incubation period (table 1). Specific therapy has not altered this fact. An incubation period under ten days has a mortality around 84 per cent, whereas an incubation period between fourteen and twenty-one days has a mortality of 25 per cent. Unfortunately, ninety-one of the cases in this series developed within ten days of the injury and only seventy-one cases after ten days, the maximum number occurring on the fifth to the seventh day. In 1,092 cases reported by Hill,[3] 73 per cent had an incubation period of ten days or less, and only 27 per cent more than ten days. Seventy-seven per cent of Anders' [1] patients had an incubation period under ten days, most of the cases occurring between five and ten days.

10. Osler: The Principles and Practice of Medicine, New York, D. Appleton & Co., 1926.
11. Zingher, Abraham: Tetanus, in Abt's Pediatrics, Philadelphia, W. B. Saunders Company, 1925.

The duration of the disease after it is established is of extreme importance in the prognosis. Hippocrates stated that persons seized with tetanus die within four days, or if they pass these, they recover. Anders gives the following figures in his collected cases: If the duration of the disease was five days or less, the mortality was 81 per cent; between five and ten days, 63 per cent; between ten and fifteen days, 30 per cent, and over fifteen days, 8 per cent. From the tenth day there is a gradual and from the fifteenth day a rapid decrease in the disease. In his 1,264 cases, the mortality was 90 per cent when the tetanus was of a duration of one day or less; 78 per cent when the duration was from one to ten days, and 25 per cent when the disease lasted from ten to twenty days. If the patient lives ten days, he has an even chance to recover. Table 2 in our series showed clearly that the greatest number of deaths occur within the first three days of the disease, with a rapid decrease in the ultimate mortality in those surviving the first three or four days.

TABLE 2.—*Relation of Mortality to Duration of Disease*

Day of Disease on Which Death Occurred	Number of Deaths	Percentage of Total Deaths
1	24	23.7
2–3	48	47.5
4–5	14	13.8
5–10	9	9.0
10–15	5	5.0
15–20	1	1.0

VALUE OF TETANUS ANTITOXIN

The most important part of this study was to determine if possible the value of antitetanic antitoxin, the proper dosage and the best route of administration. In this particular phase of the subject, statistics and reports are most misleading.

Anders and Morgan, in 1905, collected 1,201 case reports of tetanus, but the reports on specific treatment with antitoxin were indefinite as the antitoxin had not as yet been standardized into units. They concluded that the value of tetanus antitoxin after the disease had developed was very doubtful; that few claim that recovery has occurred from the antitoxin injections, and that the prevailing opinion was that tetanus may be prevented but not cured. Jacobson and Pearce, in 1906, after analyzing the serum treatment of tetanus in detail, concluded that, "after tetanus is fully established, serum therapy, however administered, promised little as a curative agent." They stated further that, without a careful analysis of the cases, one might be led to estimate the value of the method above its real worth.

Hill said in 1911 that recovery from tetanus, once it had developed, is due more to the character of the attack than to the remedies employed and that after a lapse of 2,400 years, with all modern methods of treatment, Hippocrates' statement has been little modified. He states that the mortality has not been reduced by treatment, and adds:

> In estimating the value of any reported treatment as to reduction of mortality, the incubation and duration of the disease must be considered. Not until at least thirty cases can be recorded with an incubation period under seven days, a duration of less than ten days, and a mortality of 55 per cent and under, can any such treatment be accepted as modifying the prognosis. No such treatment exists at present [1911].

Hill's statistics convinced him that "according to current reasoning this would prove, if it proves anything, that antitoxin is of no value under ten days and reduces mortality 22 per cent in cases with an incubation period of ten to twenty-five days. . . . The only reasonable conclusion is that, as in other forms, the reduced mortality is due to the character of the attack and the length of incubation and the duration."

Wainwright [12] agrees with Hill that tetanus antitoxin is most firmly joined to and becomes a part of the nerve cell; that the toxin is absorbed by the axis cylinder of the motor nerves [13] (there is some evidence to hint that the toxin may be absorbed by the perineural lymphatics and thus enter the blood stream before reaching the cord [14]); that tetanus antitoxin has not shown any power to dislocate or release tetanus poison once united with the protoplasm of the nerve cell; that there is no evidence that the antitoxin gets into the tissues of the cord and brain, and that the toxin is not present in the cerebrospinal fluid. Consequently, Wainwright feels that intraspinal injections are harmful; that they increase the mortality and should be abolished. In his experience in 243 cases in which serum was given intraspinally alone or in combination with intravenous injection, there was a mortality of 61.7 per cent, whereas 297 patients not treated intraspinally but given serum intramuscularly and intravenously showed a mortality of 52.2 per cent.

Wainwright believes with Freedlander [15] and Dean that the serum should be given intravenously only in large doses and as early in the disease as possible. Antitoxin can effectively neutralize the toxin outside the body or in the circulation or lymph. Freedlander had a mortality of 40 per cent in twenty cases in which he gave from 10,000 to 20,000 units intravenously at a time, several times a day, until all spasm was gone. Some patients received as much as from 200,000 to 600,000 units.

Ashhurst [16] contests Wainwright's statements because the latter has not carefully analyzed his statistics. Ashhurst states that the same group of figures could be made to prove that subcutaneous injections of antitoxin cured more cases than intravenous injections. He strongly advocates early intraspinal injections of antitoxin and maintains that tetanus antitoxin has a specific action on toxin already in the spinal nerve roots and spinal cord, and heads off further toxin coming up the motor nerve roots. "The patients who recover from tetanus without receiving antitoxin by the intraspinal route are exceedingly few," he says; "those who die if this treatment is used promptly also are very few." He advocates from 10,000 to 20,000 units intraspinally and 20,000 intravenously. He also cites his personal experiences; i. e., twenty-three cases of tetanus with eight deaths, a mortality of 34 per cent. If only those cases are considered in which intraspinal injections of serum were given early, the mortality was only 17 per cent.

Wainwright, Freedlander and Ashhurst do not mention the incubation period, type of injury, age, or duration of the disease. Such statistics cannot, therefore, be seriously considered, as these factors are of extreme importance in analysis. Table 3 shows how the statistical figures in our series could be misleading if other factors such as the duration of the disease were not considered.

12. Wainwright, J. M.: Tetanus: Its Incidence and Treatment, Arch. Surg. **12**: 1062 (May) 1926.
13. Meyer and Ransome: Arch. f. Exper. Path. u. Pharmakol. **49**: 367, 1903.
14. Teale, F. H., and Embleton, D.: J. Path. & Bact. **50**: 23 (Oct.) 1919.
15. Freedlander, S. O.: Am. J. M. Sc. **161**: 819 (June) 1921.
16. Ashhurst, A. P. C.: The Prognosis of Tetanus, J. A. M. A. **87**: 2089 (Dec. 18) 1926.

The diminishing mortality with increasing amounts of serum given is misleading, because those that died succumbed within one or two days after the onset before enough time had elapsed for enormous doses of serum to be given. In all reports of the reduction of mortality by a specific form of treatment, the duration of the disease must always be considered. A patient would have to live for at least three or four days before receiving a total of from 150,000 to 200,000 units of antitoxin.

When the mortality is analyzed in relation to the day on which treatment is first instituted after the onset of symptoms, it is seen that the mortality is highest when the serum is given on the first day of the disease. Obviously this is misleading also because, again, the longer the patient lived after the first day, the better the prognosis. Naturally, the cases not seen until the third or fourth day of the disease were the milder cases and therefore the mortality was lower, as in the more severe cases death had already occurred on the first or second day.

It has long been thought and taught that antitoxin given intraspinally influences the outcome of tetanus favorably. The mortality averaged about 70 per cent when between 20,000 and 50,000 units was administered intraspinally in fifty-seven cases. That large amounts of serum intraspinally probably did no harm was evidenced by a mortality of 50 per cent in eight cases,

TABLE 3.—*Mortality in Relation to the Amount of Serum Administered*

Amount of Serum in Units	Cases	Deaths	Per Cent
Less than 25,000	26	23	88
25– 50,000	53	42	79
50– 75,000	39	19	49
75–100,000	24	8	33
100–150,000	21	12	57
150–200,000	12	1	8

even when from 50,000 to 60,000 units was given. These large amounts were not given intraspinally at one time. As a rule, from 10,000 to 20,000 was given intraspinally daily.

In thirty cases of tetanus treated without intraspinal injections of serum (the usual doses being given intramuscularly and intravenously), there were seventeen deaths, or a mortality of 56 per cent, as compared with the general mortality in our series of 62 per cent.

In the seventeen deaths the average incubation period was 8.3 days. The patients not given serum intraspinally who recovered had an average incubation period of 13.3 days.

The average amounts of serum given intraspinally, intravenously and intramuscularly per case was somewhat less during the 1917-1921 period (51,443 units) than during the 1925-1929 period (64,805 units), and the mortality in the former period was 56.4 per cent as compared with 73.2 per cent in the latter. The amounts of serum given by the various routes approximated 60,000 units in each case, of which about 15,000 units was given intraspinally, 22,000 intravenously and 23,000 intramuscularly.

Because the mortality was highest in the 1 to 5 year group and lowest in the 5 to 10 year group, a more detailed analysis is made of these two groups. In the 1 to 5 year group, the mortality was 83 per cent; there were eleven males and one female; the average incubation period was nine days; most of the injuries were lacerations and puncture wounds, and the average amount of serum given was 54,000 units. In the 5 to 10 year age group, the mortality was 34 per cent; there were twenty males and twelve females; the average incubation period was fourteen days; most of the injuries were lacerations and puncture wounds, and the average amount of serum given per case was 76,000 units. Again, the various factors, as incubation period and age, influence the mortality.

SUMMARY

1. The mortality from tetanus at the Cook County Hospital has not decreased in the past fifteen years in spite of the fact that in the last five years larger amounts of antitoxin were used and it was given intraspinally to more patients.

2. A larger number of cases occurred between the 10 and 15 year period than between any other five year age period, and the smallest number between 1 and 5 years. The mortality was lowest between the 5 and 10 year period (34 per cent) and highest between 1 and 5 years (83 per cent).

3. Tetanus was five times as common in males as in females; this proportion applied also to the cases in children.

4. Tetanus following gunshot and powder wounds had a high mortality (95 per cent); following lacerations a relatively low mortality (44 per cent), and following puncture wounds a mortality about midway between the two.

5. Cases of tetanus following wounds about the face and head were no more fatal than cases following wounds of the extremities.

6. The incubation period in 56 per cent of the cases was under ten days, the maximum number occurring on the fifth to the seventh day. The mortality in cases having an incubation period under ten days was 84 per cent, whereas in those having an incubation period of from fourteen to twenty-one days it was 25 per cent.

7. The deaths were greatest on the second and third days of the disease and decreased rapidly thereafter. Consequently, if the patient survived the first three days, the chances of his ultimate recovery were much greater.

8. The available evidence in these cases as to the therapeutic use of antitetanic antitoxin does not justify any assertion that such use appreciably affects the character of the mortality, whether the serum is given intraspinally or intravenously or by both routes, or whether large doses are given or not, or how early they may be given.

COMMENT

The statistics presented do not make a strong case for the value of specific antitetanic serum in the treatment of active cases of tetanus. There is nothing to indicate that the serum does any harm, provided the proper precautions are taken against anaphylaxis. Powder and bullet wounds have a high mortality. If the patient survives the first three days, the prognosis improves materially. Prophylactic inoculations of tetanus antitoxin seem to reduce the mortality markedly if tetanus develops. The age group from 5 to 10 years had a relatively low mortality in this series.

It does not seem warranted to discourage the use of antitetanic antitoxin in the active treatment of tetanus, even though the results are discouraging. From 10,000 to 20,000 units may be given intraspinally, intravenously or intramuscularly (from 30,000 to 60,000 units total daily) for at least three successive days, beginning as soon after the symptoms are noticed as possible. Careful statistics should then be assembled

for comparison with the records which have been cited.

The usual antispasmodic and sedative therapy and proper feeding were used in this series of cases.

The high mortality of tetanus in spite of specific therapy emphasizes more strongly than ever the tremendous value of prophylactic inoculations in any cases of injury in which tetanus is even remotely liable to develop.

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ACUTE YELLOW ATROPHY OF THE LIVER

REPORT OF CASE *

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A case of acute yellow atrophy of the liver coming to necropsy at the Wisconsin General Hospital is here presented. Because acute yellow atrophy of the liver or, to use a better descriptive term, acute necrosis of the liver is a relatively rare condition, a summary of the known etiology, age incidence, sex, symptomatology and mode of onset is here given.

ETIOLOGY

The influence of pregnancy on acute yellow atrophy of the liver is shown by the frequency with which this condition occurs in pregnant women. The disease usually occurs in the second half of pregnancy and more frequently after the seventh month.[1]

That syphilis may be an etiologic factor was known even prior to the introduction of arsphenamine as a therapeutic agent;[2] but when arsenical treatment has been instituted prior to the onset of acute atrophy, the possibility of the drug being the etiologic agent should be seriously considered.

The presence of a preceding infectious disease may or may not be an important factor. If accompanied by jaundice, the relationship may be assumed to indicate liver injury. Frequently, as in the case described here, the onset may simulate a catarrhal jaundice. In the presence of an epidemic form of jaundice, the fulminating symptoms of massive liver injury may develop in a single case.

No definite proof that alcohol is an etiologic agent has been found. Chloroform and chloroform derivatives are definitely known to produce this condition. Opie[3] produced acute necrosis experimentally by the combined action of chloroform and bacteria. The occurrence of toxic jaundice with acute necrosis of the liver was observed during the World War in workers coming in contact with trinitrotoluene and tetrachlorethane. Rolleston[1] reports fifty-three fatalities from the former and twelve from the latter. In twenty-two necropsies done in these cases, the liver was always greatly diminished in size, and in some of the cases showed acute necrosis. Phosphorus is another drug that seems to have some specific destructive action on liver cells and has been reported as producing acute yellow atrophy.[4] Sutton,[5] Loewenthal and his co-workers,[6] Rake[7] and Wells[8] have reported cases showing acute necrosis following the administration of cinchophen (phenyl-quinoline-carboxylic acid). This drug should not be prescribed for any period of time except under close supervision because of its apparent extreme toxicity in susceptible individuals. The early symptoms of toxicity in cases reported by Worster-Drought,[9] Phillips,[10] Herrick[11] and Frenzel[12] were jaundice, urticaria, pain in the right upper quadrant, gastric distress, nausea, vomiting, loss of voice, nervousness and irritability. When intolerance to the drug is manifested by these symptoms, its use should be discontinued.

AGE AND SEX

Thierfelder,[13] in a report of 143 cases, noted that seventy, or nearly 50 per cent, occurred in the third decade. Approximately 20 per cent of the cases occurred in the second decade and a like percentage occurred in the fourth decade. Seventy per cent of the cases, therefore, occurred in the second, third and fourth decades. In a total of 12,449 necropsies done in the London Hospital from 1907 to 1920, nineteen cases of acute yellow atrophy of the liver were found, nine in females and two in males. Nine cases occurred in children under 7 years of age. The statistics of the number of reported deaths in England and Wales from this condition show it to be twice as common in adult females as in males. The incidence, according to sex, seems to be reversed in children. In a series of case reports collected by Phillips[14] there were twenty-five males and nine females. Pregnancy probably accounts for the more frequent occurrence in females. The cause of the greater frequency in male children has not been explained. The number of deaths resulting from acute yellow atrophy of the liver as reported to the U. S. Bureau of Vital Statistics approximates 500 a year, in the period from 1918 to 1928. The percentages of cases occurring in adult males and females and in children were not given.

SYMPTOMATOLOGY AND MODE OF ONSET

In reviewing case reports, one finds that the first symptoms complained of by the patient are usually malaise, nausea, vomiting, anorexia and headache. Accompanying these symptoms is a progressive jaundice. If the jaundice is accompanied by pain and tenderness in the right upper quadrant or in the epigastrium, cholecystitis, cholelithiasis and pancreatitis should be considered a cause for the symptoms. When there is doubt relative to the underlying condition, Whipple[15] sees no objection to proving the diagnosis by making a small abdominal incision under local anesthesia. This simple procedure does not alter the course of the disease.

The progressive jaundice with the symptoms enumerated serves in no way to distinguish the early stage

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* From the Department of Medicine, University of Wisconsin Medical School.

1. Rolleston, H. D.: Diseases of the Liver, ed. 3, London, 1929.
2. Legg, W.: Bile Jaundice and Bilious Diseases, London, 1880, p. 416.
3. Opie: J. Exper. Med. **12**: 385, 1910.
4. Poore, G. V.: Nervous Affections of the Hand and Other Studies, 1897, p. 155.
5. Sutton, D. C.: Acute Yellow Atrophy of the Liver Following the Taking of Cinchophen, J. A. M. A. **91**: 310 (Aug. 4) 1928.
6. Loewenthal, L. J. A.; Mackay, W. A., and Howe, E. C.: Brit. M. J. **1**: 592 (April 7) 1928.
7. Rake, G. W.: Guy's Hosp. Rep. **77**: 229 (April) 1927.
8. Wells, C. J. L.: Brit. M. J. **2**: 759 (Oct. 23) 1926.
9. Worster-Drought, C. C.: Brit. M. J. **1**: 148 (Jan. 27) 1923.
10. Phillips, John: Skin Rashes Following the Administration of Atophan, J. A. M. A. **61**: 1040 (Sept. 27) 1913.
11. Herrick, W. W.: A Scarlatiniform Rash from Atophan, J. A. M. A. **61**: 1376 (Oct. 11) 1913.
12. Frenzel, W. C.: Wisconsin M. J. **28**: 264 (June) 1929.
13. Thierfelder, in Ziemssen's Encyclopedia of the Practice of Medicine **9**: 245, 1880.
14. Phillips, John: Am. J. M. Sc. **89**: 177, 1912.
15. Whipple, A. O.: Am. J. Surg. **6**: 655 (May) 1929.

of the disease from simple catarrhal jaundice. The presence of bile in the stools, however, is not found in the obstructive types.

As the condition progresses, nervous manifestations usually portend a rapidly fatal course. Restlessness, delirium and subsequent coma are the sequence of events usually found. Transient paralyses, evidence of cerebral irritation, and meningismus are often seen. A positive Babinski sign is not infrequent. In the comatose state the pupils are dilated to such an extent that belladonna poisoning is often suspected.[1] Occasionally, epistaxis is extreme. Petechiae and hemorrhage under the skin and into the retina have been noted in some cases.

Laboratory tests are of little aid in arriving at a positive conclusion. They are of value in ruling out the more common causes of jaundice and central nervous system irritation. There is a diminution in the urea content of the urine and an increase in the amount of ammonia. The ammonia in the urine normally accounts for only 5 per cent of the total nitrogen present. In acute necrosis it may account for as high as 20 per cent.[1]

Leucine and tyrosine crystals in the urine may aid in establishing the diagnosis, but their presence has been noted in other conditions; i. e., erysipelas, smallpox, typhoid and leukemia. Furthermore, these crystals may be absent from the urine in case of acute necrosis. In twenty-three cases reviewed by Hunder,[16] leucine and tyrosine crystals were absent in nine.

The diagnosis of subacute and acute yellow atrophy of the liver is usually made by the process of the careful and orderly elimination of other conditions. It should be strongly considered in all cases of progressive jaundice accompanied by constitutional and nervous manifestations. If diminution in the size of the liver is an accompanying factor, it lends evidence to the conclusion. In cases in which localizing signs occur, an exploratory laparotomy is not contraindicated.

REPORT OF CASE

History.—J. W., white, a school boy, admitted to the Wisconsin General Hospital, Jan. 14, 1930, in coma, during the last week of December, 1929, had developed a gradually increasing jaundice unassociated with other complaints. The jaundice became deeper but remained symptomless until Jan. 13, 1930, when hematuria, hematemesis, epistaxis, melena and otorrhagia occurred. January 14, the patient became comatose, and when he was seen by the family physician contractions involving the muscles of the arm and back were noted. The family physician stated that there was an epidemic of jaundice in the community at the time the boy was taken ill. There was no history of drug administration.

Physical Examination.—The temperature on admission was 97.6 F., the pulse was 122, and respirations were 22 and regular. The patient was well developed and nourished, deeply jaundiced and unresponsive. He occasionally uttered a sharp, piercing cry. The pupils were widely dilated and were in coma vigil. The sclerae were deeply jaundiced. The pupils reacted sluggishly to light. Ophthalmoscopic examination revealed no abnormality. There were small clots of blood in the nose, mouth and auditory canals. The lower jaw could be depressed only slightly because of spasm of the muscles of mastication. The mucous membranes of the mouth and nose were yellowish. There was no rigidity of the neck muscles and no Chvostek sign. On auscultation of the chest, a loud blowing systolic murmur was heard in the second left interspace and was slightly transmitted. Abdominal examination did not reveal any enlargement of the liver and spleen, and no demonstrable adenopathy was present. Neurologic examination at the time of admission disclosed no abnormalities with the exception of a bilaterally positive Babinski phenomenon.

Clinical Course.—During the night, the coma gradually deepened and more evidence of central nervous system irritation developed. When the patient was seen on the morning of January 15, a rhythmic type of respiration (Biot's) was noted and a peculiar swinging of the body to the left, which was invariably followed by a kicking out of the right leg in a purposeless fashion. A curious adduction of the thumbs without the completion of the typical carpal movements of tetany was present. Deep tendon reflexes were increased and some generalized muscular rigidity was noted. The latter was increased by passive movements.

At 3:30 p. m., January 15, tetanic spasms of the legs prohibited attempts to elicit reflexes. The pupils no longer responded to light. At this time an attack of epistaxis was controlled with difficulty by means of epinephrine packs. Transfusion of whole blood (400 cc.) by the Percy method was performed at 6 p. m. Motor excitation gradually increased and all muscles became quite spastic. At 3:45 a. m., January 16, the patient died following a profuse nasal hemorrhage, which resisted all efforts at control.

Laboratory examinations included the usual routine urinalysis, which disclosed a heavy trace of albumin. There was no urobilin present, but a positive bile pigment test was obtained. Microscopic examination showed many red blood cells and many hyaline and faintly granular casts. Leucine and tyrosine crystals were absent on repeated examinations. The blood count was within normal limits with the exception of a rise in leukocytes to 19,600; there were no abnormal cells present. Platelets numbered 297,000. A blood culture was negative after forty-eight hours. The blood fragility test showed increased resistance to hemolysis, hemolysis not occurring until a dilution of 0.2 per cent sodium chloride had been reached. The icterus index was 75 and the van den Bergh test gave an immediate direct reaction with 4 units of bilirubin. Chemical studies of the blood showed a blood sugar of 92 mg. per hundred cubic centimeters; nonprotein nitrogen, 39.5; uric acid, 3.82; urea nitrogen, 15.7, and calcium, 9.5. A lumbar puncture was done and clear fluid was obtained under no increased pressure. The laboratory report on the cerebrospinal fluid was as follows: sugar, 72.8 mg. per hundred cubic centimeters; Wassermann reaction, negative; colloidal gold curve, 2332110000; Ross Jones and Noguchi tests, faintly positive, and cells, 2. The blood Wassermann reaction was negative.

A diagnosis of acute yellow atrophy of the liver was made, which was proved on postmortem examination.

The pathologist's report on the liver was as follows: The weight was 850 Gm.; the size, 24 by 17.5 by 6 cm. The organ was yellowish brown, flabby and soggy. The capsule was wrinkled. The tissue cut with increased resistance, revealing a cut surface which was moist and which showed a diffuse mottling with light canary yellow patches throughout its substance. The markings were somewhat obscured and the yellow areas described bulged above the cut surface.

On microscopic examination the liver presented a varied picture. There were some areas in which the majority of the cells in the lobule were necrotic, the only living cells being at the periphery. The latter were granular and partially disintegrating and showed fatty degeneration of a small droplet type. In other sections the lobules were shrunken and small, consisting of the connective tissue and vascular framework of the organ and surrounded by a peripheral halo of regenerating bile ducts and lymphoid cells. There was some connective tissue growth about the portal spaces and a few regenerating liver cells. A few mitotic figures could be seen.

The glomeruli of the kidney were somewhat congested and showed slight degeneration. The capsular space about the tuft, in some sections, contained a few red blood cells; in others, some albumin was present. The tubules were primarily affected. The epithelium showed parenchymatous and fatty degeneration, and some of the cells were necrotic. The lumens were encroached on by the swollen granular cells and contained albumin and some desquamated, necrotic epithelial cells. There was an organizing hemorrhagic exudate just under the pelvic epithelium.

16. Hunder, in Osler, William; and McCrae, Thomas: The Principles and Practice of Medicine, New York, D. Appleton & Co., 1926, p. 561.

LACTOSE AND INTESTINAL FLORA

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Lactose is a prime constituent of "the perfect food," milk. The normal nursling thrives on it and the healthy baby's intestinal flora is the envy of an ever-increasing proportion of the adult population. Lactose is as much a food for beneficial microbes as for man.[1] In the intestinal flora of the breast-fed baby, *Bacillus bifidus* predominates. When the baby is weaned on cow's milk, *Bacillus acidophilus* becomes the predominating microbial species. Lactose, as is well known, is an excellent source of energy for this microbe.

It was Metchnikoff's belief that many human ills arise from harmful bacteria present in the large intestine of man and, further, that senility is causally related to this "useless" portion of the gastro-intestinal tract. Consequently, he concluded that a favorable intestinal flora was the *summum bonum*. This doctrine proved a stimulus to the devising of ways and means for the development in adults of the microbes predominating in the healthy baby. Acidophilus therapy represents the logical outcome.[2]

In order to transform the intestinal flora in a favorable manner, many methods have been employed. It is not necessary to enumerate these here. Suffice it to say that they may be conveniently classified as direct and indirect methods. Direct methods involve the administration of suitably large doses of viable *Bacillus acidophilus*. Not infrequently, however, the pabulum offers overwhelming obstacles on the grounds of unpalatability, lack of preservation, variation in uniformity or excessive bulk. The indirect methods rely chiefly on the administration of a substance that will act as a food to the acidophilus bacilli assumed to be present in every adult intestinal tract.

Lactose falls precisely into this category. Its obvious advantages are uniformity of composition; preservation under conditions that would prove inimical to acidophilus products; relative palatability; small bulk, and ease in handling. A further important consideration is that lactose stimulates the acidophilus bacilli native to the individual's intestinal tract as compared with the ingestion of alien strains. Some investigators have raised the serious question of whether true implantation of nonautogenous strains is really possible.[3] Lactose is one of the few sugars that is absorbed with great difficulty in the human intestinal tract. This means that a relatively large proportion of ingested lactose reaches the colon. There it can serve as a source of energy for *B. acidophilus*.

Lactose has been effectively employed in the transformation of the intestinal flora. The literature bearing on this point has already been summarized.[2] Credit for demonstrating the value of lactose in the human intestinal tract belongs to Torrey,[4] who transformed the intestinal flora of patients with typhoid by means of from 250 to 300 Gm. of lactose daily. Rettger and Cheplin[5] have made further important contributions along the same lines. Whittier[6] has exhaustively reviewed the literature on lactose from all aspects, chemical as well as bacteriologic. However, other than the papers of Torrey[4] and of Rettger and Cheplin,[5] there are no significant accounts of the daily feeding of lactose to human beings accompanied by careful bacteriologic analyses of the subsequent changes in the intestinal flora. The present investigation, therefore, was designed to throw further light on this very difficult subject.

PLAN OF EXPERIMENT

In organizing a lactose feeding experiment, the selection of suitable subjects is a matter of prime importance. They must be, above all, reliable, cooperative and interested. A homogeneous group, the members of which are nearly the same age and follow the same activity, is eminently desirable. It is therefore a source of much gratification to be able to state that first year medical students of the College of Physicians and Surgeons and second year students of the School of Dental and Oral Surgery of Columbia University in the City of New York volunteered to serve in this investigation. All were in good health and none were troubled with constipation. Consequently, they may be regarded as closely approximating the ideal of a "normal" group of individuals. They kept a daily written record of the amount, consistency and color of each defecation for a preliminary period of about two weeks and subsequently throughout the course of the investigation, making special notes as to any medication concerned with the intestinal tract. In all, there were forty-five students cooperating in this investigation.

A survey of the literature concerned with the influence of lactose on the human intestinal tract leaves considerable doubt as to the relative dosage and time required to effect a transformation. In general, it appears necessary to ingest from 250 to 300 Gm. daily for about a week.[4] It may be reasoned that transformation depends on two factors: the daily amount of lactose and the number of days of ingestion. Thus, it might be anticipated that, within certain limits, the larger the amount of lactose, the fewer days required to effect transformation, and vice versa.

In order to put the investigation on a practical basis so as to determine the minimum amount of lactose required for transformation within a period of from three to eight months, the entire group of forty-five students was subdivided into three equal groups of fifteen subjects as follows:

The first group ingested 10 Gm. (about one-third ounce) of lactose daily. The second group ingested 50 Gm. (about 2 ounces) of lactose daily, and the third group 100 Gm. (about 4 ounces) of lactose daily. Thus, the minimum dose was about one heaping tablespoonful and the maximum dose about one-fourth pound of lactose daily. All subjects were requested to take their lactose as dry as possible.

Bacteriologic examinations of the feces of all subjects were made before any ingestion of lactose and every three weeks thereafter until the summer vacation. When the subjects returned for the fall session, their feces were reexamined. Plate counts were made on casein-digest agar and stained smears according to the Kopeloff-Beerman modification.[2]

Precisely what is meant by "transformation" and by what criteria can it be judged? As ordinarily used, the phrase "transformation of the intestinal flora" denotes a change in the microbic population of the

1. Kopeloff, Nicholas: Man Versus Microbes, New York, Alfred A. Knopf, Inc., 1930.
2. Kopeloff, Nicholas: Lactobacillus Acidophilus, Baltimore, Williams and Wilkins Company, 1926.
3. Park, W. H.; Williams, Anna W., and Krumwiede, Charles: Pathogenic Micro-Organisms, ed. 9, Philadelphia, Lea and Febiger, 1929, p. 408.
4. Torrey, J. C.: The Fecal Flora of Typhoid Fever and Its Relation to Various Diets, J. Infect. Dis. **16**: 72-108, 1915.
5. Rettger, L. F., and Cheplin, H. A.: A Treatise on the Transformation of the Intestinal Flora with Special Reference to the Implantation of Bacillus Acidophilus, New Haven, Conn., Yale University Press, 1921.
6. Whittier, E. O.: Lactose: A Review, Chem. Rev. **2**: 85-125, 1925.

intestinal tract from one that is predominantly gram-negative to one that is predominantly gram-positive. The microscopic examination of gram-stained fecal smears has been extensively employed as an index of such transformation. Unfortunately, such a criterion has little value, for a gram-stained smear reveals alike the presence of dead microbes and those that are alive in the intestinal tract. If, for example, a gram-stained smear showed 60 per cent gram-positive bacilli and 40 per cent gram-negative, one might be tempted to state that this represented a transformation. Yet, if all but 5 per cent of the gram-positive bacilli were dead in the intestinal tract and 30 per cent of the gram-negative bacilli were alive, obviously no transformation could be said to exist.

Living microbes alone are significant in a clinical sense. Consequently, a direct method of counting the living intestinal microbes must be employed. Such a laborious procedure as plating out the fecal specimens in varying dilutions on an appropriate medium is required.

marked "Per Cent B.A. Plate," which refers to the percentage of viable *B. acidophilus* found by actually plating on casein digest agar. Obviously, the latter column has the greater significance. Under "first analysis" are included only the results obtained before the ingestion of lactose. Subsequent analyses, except when they are so indicated, were made while lactose was being ingested. The final analysis for each individual (and occasionally the one before the last) was made in the fall so that its significance would depend on whether or not the subject had continued the ingestion of lactose. In the final column the date is recorded when each subject discontinued lactose. Except in two instances all *B. acidophilus* colonies were of the so-called X type, appearing as irregular wooly specks. This type of *B. acidophilus* is of known therapeutic value. The same cannot be said for the Y type, which

Results of Fecal Examinations

	Began Lactose About March 1, 1929														
	Before Lactose First		Second		Third		Fourth		Fifth		Sixth		Seventh		
Subject Number	Per Cent Gram +	Per Cent B. A. Plate	Per Cent Gram +	Per Cent B. A. Plate	Per Cent Gram +	Per Cent B. A. Plate	Per Cent Gram +	Per Cent B. A. Plate	Per Cent Gram +	Per Cent B. A. Plate	Per Cent Gram +	Per Cent B. A. Plate	Per Cent Gram +	Per Cent B. A. Plate	Dates Lactose Was Discontinued
						Group 1, 10 Gm. of Lactose Daily									
1	0.5	1	0.2	7	0.1	2	0.1	0	0.1	0	...	..	...	..	9/ 8/29
2	1.0	0	1.0	0	1.0	0	1.0	0	0.1	0	2.5	0	...	..	9/30/29
3	1.0	0	0.1	0	0.1	0	0	0	2.0	10	4.0	0	—	15*	10/29/29
4	0.4	0	0.1	0	0.1	0	3.0	0	...	..	...	..	...	..	5/ 8/29
5	0	0	1.0	0	4.0	0	0.1	0	1.0	3	0	1	5	10	10/31/29
6	0.5	0	20.0	0	0.1	10	0.1	10	1.0	0	4.0	0	...	..	9/23/29
7	1.0	0	1 0	10	2.0	10	1.0	0	3.0	0	1.0	0	...	..	5/31/29
8	1.0	0	2.0	0	...	..	...	..	...	..	...	..	...	..	8/ 3/29
9	0.4	0	1.0	0	1.0	0	5.0	4	—	0	...	..	...	..	10/28/29
10	0.1	0	0.1	0	0.1	12	1.0	0	0.1	0	0.1	0	...	..	9/30/29
11	0.1	0	1.0	0	0.5	0	0.1	0	0.1	0	2.0	0	0	0	10/30/29
12	0.2	0	0	0	0.1	0	0	0	0	0	7.0	20*	...	..	10/ 1/29
13	10.0	33	5.0	20†	5.0	5	4.0	20	20.0	10	15.0	15	—	0	8/ 3/29
14	1.0	8	1.0	15†	2.0	25	...	..	...	..	...	..	...	..	4/ 1/29
15	25.0	33	2.0	33†	1.0	22	1.0	33	5.0	3	0	0	...	..	6/15/29
						Group 2, 50 Gm. of Lactose Daily									
16	1.0	2	0.1	2	...	..	...	..	...	..	...	..	...	..	4/ 1/29
17	1.0	0	1.0	5	0.1	0	1.0	0	0	20*	—	10	...	..	10/31/29
18	0.1	0	0	0	0.1	0	0.1	0	0.1	0	0.1	0	0	0	10/15/29
19	1.0	8	0	5	0.1	0	0.5	0	3.0	0.5	—	..	...	..	4/22/29
20	0.1	0	0.1	0	5.0	0	2.0	35	1.0	10.0	0.1	0	...	..	6/ 3/29
21	0.5	0	10.0	2	2.0	0	5.0	50	5.0	20.0	25.0	0	...	..	6/ 8/29
22	0.1	0	0	0	0.1	0	2.0	0	4.0	0	—	0	...	..	10/19/29
23	0	0	0.1	0	1.0	0	0.1	0	0.1	0	...	..	...	..	4/ 2/29
24	1.0	0	0.1	0	0.1	0	1.0	0	11.0	0	...	..	...	..	5/ 1/29
25	1.0	0	10.0	60	10.0	75	3.0	0	2.5	0	...	..	...	..	5/20/29
26	1.0	0	0	0	5.0	40	25.0	50	10.0	0	...	..	...	..	8/ 1/29
27	0.2	0	0.5	33	2.0	0	8.0	0	...	..	...	..	...	..	7/25/29
28	20.0	28	1.0	13†	3.0	5	1.0	8	4.0	50.0	0	0	—	21	10/26/29
29	50.0	10	2.0	17†	1.0	20	1.0	5	0.1	0	0.1	0	...	..	4/20/29
						Group 3, 100 Gm. of Lactose Daily									
30	1.0	0	0.1	0	0.1	0	0.1	0	0	0	0.1	0	...	..	6/22/29
31	50.0	0	3.0	0	0.2	0	5.0	10	16.0	0	...	..	...	..	11/ 5/29
32	10.0	0	0.5	0	0.1	0	1.0	0	10.0	0	...	..	...	..	5/ 2/29
33	0.1	0	0.4	0	0	0	...	..	...	..	...	..	...	..	5/31/29
34	0.1	0	0	0	0	0	2.0	0	...	..	...	..	...	..	5/20/29
35	10.0	2	3.0	88	50.0	0	50.0	50	30.0	16*	0	0	...	..	5/20/29
36	0.4	0	0.6	0	3.0	0	0.1	0	5.0	0	...	..	...	..	6/ 8/29
37	1.0	33	5.0	33†	10.0	20	20.0	15	25.0	50	10.0	50	1.0	0	5/23/29
38	2.0	0	10.0	0	0	0	3.0	1	...	..	...	..	...	..	5/24/29
39	0.1	0	10.0	50	15.0	35	10.0	30	...	..	...	..	...	..	5/24/29
40	3.0	0	0.1	0	1.0	0	2.0	0	16.0	51*	...	..	...	..	6/ 6/29
41	1.0	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	8/10/29
42	5.0	0	0.2	0	1.0	0	...	..	...	..	...	..	...	..	5/15/29
43	0.5	0	6.0	0	1.0	0	1.0	0	1.0	0	0	0	0.1	0	10/10/29
44	20.0	75	30.0	25†	25.0	60	25.0	65	50.0	65	12.0	54	...	..	11/ 6/29
45	30.0	10	2.5	9†	10.0	10	10.0	0	2.0	0	11.0	19	—	19	11/ 3/29

* Y type of B. acidophilus.
† Before lactose administration.

RESULTS

The results of the fecal analyses are presented in the accompanying table. Under each analysis will be found two columns, the first marked "Per Cent Gram +," which refers to the microscopic examination of gram-stained smears, showing the relative percentage of gram-positive microbes, and the second column is a smooth-edged round or lenticular colony, very difficult to distinguish from organisms other than lactobacilli.

The results of fecal examinations, as shown in the table, were as follows: In group 1, receiving 10 Gm. of lactose daily, there was no evidence of transformation of the intestinal flora.

In group 2, receiving 50 Gm. of lactose, there was a transformation in four out of fifteen subjects.

In group 3, ingesting 100 Gm. of lactose daily, three out of seven subjects showing an increase in *B. aci-*

dophilus gave evidence of transformation. The highest figure in the entire list of subjects is to be found in patient 35 in this group, who had 88 per cent *B. acidophilus*. The results of the ingestion of 100 Gm. of lactose were approximately the same as those obtained after the ingestion of 50 Gm. of lactose.

Taking the results of all the subjects into consideration, one finds that twelve of the forty-five subjects, or 27 per cent, had *B. acidophilus* originally present in their intestinal tracts. The figures varied from 1 to 75 per cent, with an average of 20 per cent.

COMMENT

While in general the ingestion of 10, 50 and 100 Gm. of lactose daily for from three to eight months did not result in a wholesale transformation of the intestinal flora, there is evidence that the larger amounts of lactose mentioned did succeed in effecting a transformation in about one fourth of the normal subjects cooperating in this investigation. No attempt is made here to discuss the bacteriologic results in detail, nor need anything further be said concerning the nature of the defecations other than that there was improvement in approximately 40 per cent of the subjects of groups 2 and 3 and no improvement in group 1.

Parenthetically, it must be stated that initial doses of 100 Gm. of lactose have in six instances caused a diarrhea which subsided after the dose was reduced. It would be better practice in administering a dose of 100 Gm. of lactose to work up to that amount gradually, starting with 25 Gm. and spacing the increasing dosage over a week. Individual reactions to lactose in amounts of 100 Gm. are exceedingly variable. Almost all of those individuals who had diarrhea later were among those who showed improvement in the character of their feces.

This investigation was planned solely from the standpoint of lactose administration. In other words, no effort was made to insure the presence of *B. acidophilus* by the ingestion of viable organisms. Theoretically, every individual may be supposed to harbor some *B. acidophilus* organisms. Usually the number is so small that ordinary plating methods fail to reveal their presence. Thus, of the forty-five subjects under consideration, twelve, or approximately one fourth of the entire series, harbored enough *B. acidophilus* organisms to be counted by our methods.

The success or failure of transformation apparently depends entirely on the dosage of lactose in a given period of time. Arbitrarily, it was thought practicable to administer 10, 50 and 100 Gm. of lactose daily. Obviously, the largest dose is too small to insure transformation in any reasonable length of time. This does not mean that larger doses will or will not effect transformation. According to the literature, from 250 to 300 Gm. of lactose daily would effect a transformation within a few weeks.[4] Commercial claims of transformation as a result of the daily ingestion of a couple of spoonfuls thrice daily are unwarranted in the light of the experimental evidence advanced here.

A priori there would be greater difficulty in transforming the intestinal flora of more constipated subjects. No attempt was made in this investigation to control the diet of these subjects. Most of them were moderate meat eaters, some ate a large amount of meat, and others favored a diet chiefly vegetarian. This series of forty-five subjects offered the expected degree of variability. The results of lactose ingestion may therefore be considered representative of the nonconstipated population at large.

SUMMARY

The following points have been established, subject to the limitations inherent in this investigation of three groups each of fifteen healthy young adults in the third decade who ingested lactose daily for a period of from three to eight months:

1. The ingestion of 10 Gm. of lactose (about one heaping teaspoonful) daily did not result in a transformation of the intestinal flora as determined by plate or microscopic count of fecal specimens.

2. The ingestion of 50 Gm. (about 2 ounces) of lactose daily caused a transformation in four out of the fifteen subjects.

3. The ingestion of 100 Gm. (about 4 ounces) of lactose daily caused a transformation in three out of the fifteen subjects. The maximum percentage of viable *B. acidophilus*, 88 per cent, occurred in this group.

4. *Bacillus acidophilus* was present in 27 per cent of the subjects before lactose ingestion.

5. The presence of *B. acidophilus* before lactose ingestion did not aid in effecting a transformation.

6. The lactose dosage appears to be the sole factor in effecting transformation in a given period of time.

7. The lactose dosage employed, from 10 to 100 Gm., was not sufficient to insure uniform transformation in from three to eight months.

THE ASSOCIATION OF CARCINOMA OF THE TONGUE AND SYPHILIS

AS DETERMINED BY POSITIVE SEROLOGIC TESTS *

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Recent literature contains many references to the frequent association of carcinoma of the tongue and syphilis of the tongue. In discussing this subject in 1929, Parounagian [1] made the following statement: "The majority of cases I have seen of cancer of the tongue usually begin on a syphilitic base, i. e., gumma turning to cancer." Eller and Anderson [2] state their belief that cancer of the tongue and tertiary syphilis of this organ are associated in 60 per cent of the cases.

These two statements substantially confirm earlier German figures relating to the occurrence of cancer of the oral cavity on preexisting syphilitic lesions or their residua.

Clinical experience at the University Hospital in Ann Arbor, where both cancer and syphilis are seen in large numbers, has generally confirmed our opinion as to the frequency of the association of the two conditions in the tongue. Many cases of cancer arising in gummatous tongues have been noted here; cancers occurring in the tongue in patients with asymptomatic syphilis with positive blood reactions have also been noted, and, finally, we have seen many cases of cancer of the tongue in patients with no evidence of syphilis from the standpoint of the history, clinical examination or serologic tests of the blood. As part of a comprehensive study of the association of various forms of

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* Studies and Contributions of the Department of Dermatology and Syphilology of the University of Michigan Medical School, service of Dr. Udo J. Wile.

1. Parounagian, M. B., in discussion on Eller, J. J.: Carcinoma of the Tongue in a Syphilitic Patient, Arch. Dermat. & Syph. **20**: 732 (Nov.) 1929.

2. Eller, J. J., and Anderson, N. P.: Cancer Supervention in Skin Diseases, J. A. M. A. **94**: 382 (Feb. 8) 1930.

cancer with syphilis, the following material is presented to show the association of syphilis with cancer of the tongue as it has occurred in the university clinics over a period of five years.

In syphilologic clinics in which cases of cancer of the tongue are seen because of positive serologic tests or other manifestations of syphilis, clinical points of view and teaching are perhaps apt to be biased if there is not an opportunity of seeing all cases of cancer of the tongue irrespective of the history or coexistence of syphilis.

In most hospitals, cancers of the tongue which are seronegative are apt to be seen by the surgeon or in the departments of oral surgery. For this reason, perhaps, the high frequency of syphilis in cancer of the tongue would appear to be more apparent than real. Analysis of the material in our own clinic, for example, would naturally lead us to a biased point of view.

For the purpose of eliminating this source of error, we have studied ninety-two cases of cancer of the tongue taken from all departments of the hospital in which, from the history and examination, biopsy, operation or autopsy, we could be certain of our diagnoses.

In all these cases the serologic reaction was checked by a careful and sensitive Wassermann test and, more recently, by the Kahn test.

Reactions that were reported as less than + + + were accepted as positive evidence of syphilis only when there was other evidence to support the diagnosis of syphilis.

The material consists of ninety-two cases, of which seventeen occurred in women and seventy-five in men. The accompanying tabulation is extremely interesting from several standpoints.

Relation of Syphilis and Cancer of the Tongue

	Cases of Carcinoma of Tongue	Positive Serologic Reactions	Percentage with Positive Serologic Reactions
Female	17	1	5.8
Male	75	26	34.7
Total	92	27	29.3

The occurrence of cancer of the tongue in almost 20 per cent of our cases in women stands out as a rather startling finding in view of the general belief of a more overwhelming preponderance of the condition in men.

Of this group, however, only one patient, or, roughly, 5 per cent of the group, had an associated syphilis as evidenced by a positive blood reaction. In striking contrast with these figures are those for cancer in men, in which it is found that twenty-six of the total of seventy-five cancers are associated with a positive blood reaction, or almost 35 per cent, and in a number of these the two processes were seen together, or preexisting syphilitic residua could be demonstrated.

Adding the incidence of coexisting syphilis and cancer of the tongue in both sexes, we find this association in twenty-seven of our ninety-two cases, or approximately 30 per cent.

In order to evaluate these figures properly, they have been checked against the general syphilitic incidence in routine serologic registrations in our hospital as well as against a group of 248 cases of cancer located elsewhere in the body.

In 2,000 consecutive hospital admissions for all diseases, syphilis as determined by a positive serologic blood reaction occurred in 5.7 per cent. This figure is one that varies but little over a long period of time in our hospital admissions.

It is obvious, therefore, that serologic evidence of syphilis is five times greater in cases of cancer of the tongue than in the general run of cases in which application is made for admission to the hospital.

With regard to the incidence of seropositive syphilis in cancer generally, there are available for this study 248 cases, which include 130 men and 118 women. This group is made up of both localized and generalized types of carcinoma occurring in practically every organ in the body. In this group it is interesting to note that seropositive evidence of syphilis occurs in only 7.2 per cent, a slightly higher average than the general syphilitic incidence of the hospital registrations. Compared with the apparent incidence of syphilis in tongue cancer, it is to be noted that the latter is about four times as great as occurs with cancer elsewhere.

Of particular interest, however, and in contrast to the sex incidence in the group of cancer of the tongue, is the fact that the seropositive incidence in women is slightly higher than in men, when cases of other types of cancer are concerned (8.5 per cent as compared with 6.1 per cent).

It has been found that carcinomas of certain organs appear to be associated with syphilis in a high percentage of cases, while in other organs the percentage is strikingly low or absent. The results of our investigation of cancer and syphilis elsewhere are now being studied and will be reported later. In the group of carcinomas of the tongue, two other points of interest stand out from the material herein studied.

As only one woman with cancer of the tongue was found to have a positive blood reaction, no statement regarding the age incidence can be made for the female group. In the case of the men, however, the patients in whom syphilis apparently coexisted with cancer had their cancers develop at an average age of 54 years. The nonsyphilitic group showed the onset of the cancer occurring at an average age of 62 years.

From these figures it would appear that the carcinomatous tendency was distinctly hastened by the coexisting syphilis, and that the latter was a distinct factor in this way on the patient's expectancy.

Leukoplakia was found approximately twice as frequently in the seropositive as in the seronegative cases. It was found, however, in 20 per cent of the latter group. These figures indicate the potential danger in leukokeratoses but throw considerable doubt on their being uniformly syphilitic residua.

SUMMARY

In ninety-two cases of cancer of the tongue, seropositive evidence of syphilis occurred in 29.3 per cent.

Contrasted with a 5 per cent incidence in general hospital registrations and 7.2 per cent incidence in cancer generally, this figure establishes a definite close relation between syphilis and cancer of the tongue as presumptive cause and effect.

In the group studied, patients with syphilis developed cancer of the tongue on an average eight years earlier than did the nonsyphilitic patients.

Leukoplakia as a forerunner to cancer occurred twice as frequently in the syphilitic as in the nonsyphilitic cases.

The high incidence of syphilis in cancer of the tongue in our group did not hold true for female patients. If this group should be left out, the incidence of syphilis and cancer would be increased to 34.7 per cent.

Clinical Notes, Suggestions and New Instruments

BLASTOMYCOSIS OF THE PROSTATE, EPIDIDYMIS AND LEG *

BRANSFORD LEWIS, M.D., GRAYSON CARROLL, M.D., AND GAROLD V. STRYKER, M.D., ST. LOUIS

Blastomycosis was first described by Gilchrist in 1896. It has since been reported from most countries of the world. In the United States it appears to be of more frequent occurrence in the Mississippi Valley region. It is not infrequent in the experience of dermatologists in St. Louis. The particular interest in the case reported here was the localization of blastomycetes in the prostate and epididymis, and the subsequent course following prostatectomy and the use of iodides.

The prognosis of systemic blastomycosis is grave.

Our patient made a rapid and complete symptomatic recovery We are aware, however, that localized foci of the organism may still be present, and future trouble from this source is not beyond a possibility.

REPORT OF CASE

In the case reported here the lesions on the skin when one of us was called into consultation consisted of an oval ulcer, 3 by 1½ inches, on the calf of the left leg. The border of this ulcer was elevated about 5 mm. and was covered with a closely adherent crust. Surrounding the border was a peripheral area of 3 or 4 mm. in which the active process could be seen to be extending into normal skin. The center and base of the ulcer consisted of moist granulations. The entire lesion had a purple cast which was distinct and unmistakable.

On the lower third of the left leg was a similar but much smaller area which was undergoing spontaneous involution.

Over the right first phalangeal metatarsal joint a sinus discharged thick, yellow pus. Pain could be elicited by deep pressure and on passive motion of the joint.

There was bilateral inguinal lymphadenitis; the glands were discrete and not tender.

After the crust had been removed from the large lesion on the left leg, a small amount of pus was obtained. To this pus potassium hydroxide solution (40 per cent) was added and the preparation was mounted under a cover slip on a glass slide. This was allowed to stand for an hour. Examination showed many large, round and oval double contoured organisms, single and in the budding stages. Several subsequent examinations confirmed this observation.

The genito-urinary examination showed no urethral discharge. The specimens of urine in both glasses were cloudy as a result of pus and *Bacillus coli*. There was a small sinus in the right scrotum discharging a thin watery material. The skin was adherent to a tender and irregularly enlarged epididymis. On palpation by rectum the prostate was enlarged, smooth and round, not tender and with no fluctuation, giving the impression of benign hypertrophy. The residual urine was 4 ounces.

After a week of catheter and suprapubic drainage, the prostate was removed. During the enucleation, prostatic abscess cavities were encountered and thick creamy pus was evacuated which, on later examination, proved to be filled with typical cells, morphologically similar to those seen in the pus from the ulcer of the leg. Sections of the gland revealed minute intraprostatic abscesses. Sections of the tissue were submitted to Dr. Collier of the department of pathology, who confirmed the diagnosis of blastomycosis.

The patient was given increasing doses of saturated solution of sodium iodide until he was taking 120 drops daily without ill effects. The ulcer on the leg immediately began to heal; the scrotal sinus closed, and the suprapubic wound healed within the usual time following prostatectomy. No roentgen treatments were found necessary.

COMMENT

It is important to note that the clinical course of this case was changed only when an accurate diagnosis was established. The patient had been growing progressively worse for the past six months under empiric treatments, consisting of every imaginable medication.

At first, thinking it to be only a leg ulcer, the physicians in charge prescribed local applications of ointments, wet packs and dry powders; later, under the impression that it was due to tuberculosis, roentgen treatment was administered; failing with that, although the Wassermann reaction was negative, antisyphilitic treatment was tried; excision and incision failed, and finally long and continued elevation of the limb failed. Potassium iodide was given, but only in small amounts. Today the patient has apparently recovered simply from the administration by mouth of large doses of sodium iodide.

Preis and Forro [1] reported a case in February, 1928, involving the urethra; Perazzi [2] reported a case with vulvovaginal involvement; Toepel,[3] at autopsy, found blastomycosis involving the kidney, and Rhamy [4] reported a case of blastomycosis of the bladder in August, 1926.

As far as we are aware, this is the only case reported of blastomycosis of the prostate gland.

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AN IMPROVED ELECTROTHERMAL INSTRUMENT FOR MEASURING THE SURFACE TEMPERATURE *

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In recent years a much more hopeful attitude has come into the literature concerning vascular diseases in the extremities.[1] One of the important factors in this has been the recognition of vasospasm as a significant, often the decisive, element in many local circulatory disturbances. In the conservative therapy of those vascular diseases that lead to gangrene the central problem is terminal nutrition, the blood supply to the distal part of the extremity. Consequently, today in studying such conditions it becomes of paramount importance to determine not only the presence or absence of vascular spasm and occlusion but also the relative contributions of each to the circulatory deficiency in the extremity. The latter is now possible. Paralysis of the sympathetic innervation of the part temporarily overcomes vasospasm.[2] In individuals with normal blood vessels such regional paralysis or a general anesthesia abolishes the vasoconstrictor gradient and all areas of the extremities attain approximately the same surface temperature, the normal vasodilatation level.[3] In vascular disease the degree of mechanical obstruction in an area can be estimated by subtracting the maximum surface temperature reached from the normal vasodilatation level (the occlusion index). Calorimetry, oscillometry and the intracutaneous salt solution test are sometimes of value in establishing the competence of the circulation but are not sufficiently delicate methods to demonstrate the proportionate amounts of spasm and occlusion. In brief, then, an accurate and easily obtained surface temperature reading is a requisite of the present-day studies of peripheral vascular diseases.

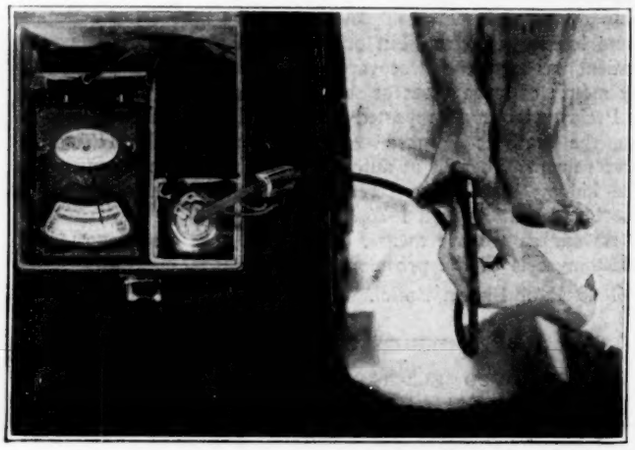
1. Preis, K., and Forro, A.: Wien klin. Wchnschr. **41**: 235-236 (Feb. 16) 1928.
2. Perazzi, P.: Alti d. r. Acad. e. fisiocat in Siena **2**: 335, 338, 1927.
3. Toepel, Theodore: Systemic Blastomycosis, J. A. M. A. **93**: 32 (July 6) 1929.
4. Rhamy, B. W.: Blastomycosis of the Bladder, J. A. M. A. **87**: 405 (Aug. 7) 1926.

* From the Department of Surgery, the University of Rochester School of Medicine and Dentistry.

1. Brooks, Barney; and Jostes, F. A.: A Clinical Study of Diseases of Circulation of the Extremities; Description of New Method of Examination, Arch. Surg. **9**: 485 (Nov.) 1924. Brown, G. E., and Henderson, M. S.: The Diagnosis and Treatment of Arterial Vascular Disease of the Extremities, J. Bone & Joint Surg. **9**: 613 (Oct.) 1927. Adson, A. W.: Surgical Relief of Raynaud's Disease and Other Vascular Disturbances by Sympathetic Ganglionectomy and Perivascular Neurectomy, Ann. Clin. Med. **5**: 161 (Aug.) 1926. Davis, Loyal; and Kanavel, A. B.: Sympathectomy in Raynaud's Disease, Erythromelalgia, and Other Vascular Diseases of the Extremities, Surg. Gynec. Obst. **42**: 729 (June) 1926. Allen, A. W., and Smithwick, R. H.: Use of Foreign Protein in the Treatment of Peripheral Vascular Diseases, J. A. M. A. **91**: 1161 (Oct. 20) 1928.
2. White, J. C.: Diagnostic Blocking of Sympathetic Nerves to Extremities with Procaine, J. A. M. A. **94**: 1382 (May 3) 1930.
3. Morton, J. J., and Scott, W. J. M.: The Measurement of Sympathetic Vasoconstrictor Activity in the Lower Extremities, J. Clin. Investigation, to be published. Scott, W. J. M., and Morton, J. J.: Obliteration of the Vasoconstrictor Gradient in the Lower Extremities Under Nitrous Oxide-Oxygen, Ether and Tribromethyl Alcohol Anesthesias, Proc. Soc. Exper. Biol. & Med., to be published.

The thermocouple method is the standard one in use by most investigators to determine the temperatures in the extremities. For an ideal instrument the following three characteristics are essential: (1) accuracy, (2) simplicity and (3) speed. Allen and Smithwick[1] described the apparatus that seemed to fulfil these requirements best.

In the devising of an improved apparatus,[4] as shown, the essential parts have been put into a compact case, and the



Improved electrothermal instrument for measuring surface temperature.

sensitivity of the electrothermal junctions has been increased by putting four couples in series. In this way it has been possible to calibrate the galvanometer directly in degrees centigrade. The reading in degrees is added or subtracted directly from the reading of the constant temperature, which gives directly the surface temperature. It takes less than ten seconds for each reading, a point of considerable importance when vasomotor responses are being studied. The instrument is easily portable and is entirely housed in a leather case nine inches cube.

OBSERVATIONS ON THE HEARTS OF MEN ENGAGED IN ATHLETICS

T. K. RICHARDS, M.D., BOSTON

It is not an unusual occurrence at athletic contests to see a man collapse during or at the end of a hard race. When he collapses the clinical picture is that of utter exhaustion, the patient gasping for air and yet being unable to take a full breath. He complains of abdominal pain and is more comfortable lying on his side doubled up, with both hands pressed tightly against the abdomen. The pulse is rapid and not of good quality. Although the patient is perspiring freely, his body feels cold. There is often considerable nausea and not uncommonly vomiting, and in extreme cases there may be unconsciousness.

Various reasons have been given in explanation of the cause of this collapse. Rarely it has been brought about by rupture of a heart valve. Some medical observers have attributed it to an acute cardiac dilatation. The latter condition does not seem to fit the clinical picture. Other observers have thought that a lowering of the blood sugar was a causative factor.

None of these reasons for the collapse seen in athletes during and after strenuous exertion seemed logical, so it was decided to carry out a series of 7 foot roentgen studies of the hearts of athletes when at rest and immediately after exercise. In order to take roentgenograms of a man unconscious from overexertion, it was necessary to have him in a prone position. Therefore, to be consistent, all films were taken with the plate exactly 7 feet from the x-ray target and with the man lying flat on his chest.

These studies were carried out on all members of Harvard's varsity and freshman cross country squads, on various visiting cross country squads, and on individual distance runners of international fame during a period of four years.

4. The Taylor Instrument Company of Rochester, N. Y., has cooperated with me in perfecting this instrument.

The films of the men at rest were made on days when no exercise was being taken and no race or competition was imminent in order to avoid any psychologic factor causing excitement. The films after racing were taken as the men finished their races; i. e., after crossing the finish line they ran on into the x-ray room and the plates were taken before they had any time to rest.

The accompanying table shows the results of these observations. Unfortunately, all the roentgen films and the figures obtained from them except the one series presented in the table were destroyed in a recent fire. However, these figures are typical of the whole series.

From the table it will be noted that the hearts after racing were consistently smaller than those at rest. Two after racing showed no change in the transverse heart diameter, and only one man showed an increased transverse heart diameter of 0.1 cm.; but it is to be noted that this man had rested about three minutes before the film was taken. With the exception of the one instance of increased diameter, the range of decreased transverse diameter was from 0 to 1.4 cm., the average contracture for the nineteen cases being 0.67 cm.

There were also several other rather striking facts noted:

1. The hearts of distance runners who had had many years of competition showed the greatest decrease in the transverse diameter after racing, this decrease not infrequently being as much as 2.5 cm.

2. The hearts of men in collapse—i. e., unconscious at the time the observation was made under the fluoroscope—showed in addition to a small contracted heart, the right border of which lay behind the sternum, a markedly diminished systolic excursion. As the man's condition improved and he regained consciousness, this excursion became greater and greater and finally at the end of an hour or more the heart in some cases resembled one that was acutely dilated.

The author is not a trained cardiologist and so hesitates to trespass on the field of competent observers of hearts; but it did seem worth while to record these observations in the hope that trained workers in this field might more accurately check these results and offer some explanation of the clinical picture. The following is offered as a partial explanation of the conditions noted: It has been fairly definitely demonstrated that the so-called cramps of striated muscle are due to an excess of lactic acid in the affected muscle, and that the cramp can be relieved by any method that will increase the carbon dioxide content of the blood stream, thus setting free the lactic acid.

Results of Roentgenographic Studies of the Heart After Cross Country Races *

Athletes	1926 Before Race T. D.	1926 Before Race H. D.	1926 After Race T. D.	1926 After Race H. D.	Difference H. D.
1	26.5	12.4	25.2	11.7	—0.7
2	31.3	13.0	30.2	12.1	—0.9
3	29.2	12.6	29.5	11.9	—0.7
4	27.8	13.3	27.8	12.6	—0.7
5	27.5	12.9	27.5	12.5	—0.4
6	26.4	11.4	25.1	11.0	—0.4
7	24.5	12.8	27.4	11.4	—1.4
8	28.0	11.1	27.2	11.2	+0.1
9	30.3	13.7	29.7	13.0	—0.7
10	27.0	12.5	27.0	11.6	—0.9
11	30.2	14.2	30.3	13.2	—1.0
12	28.6	11.6	28.4	10.8	—0.8
13	28.4	11.6	28.5	11.6	0.0
14	28.8	12.6	28.7	11.2	—1.4
15	26.5	11.7	26.5	11.3	—0.4
16	31.2	11.5	30.6	11.5	0.0
17	29.2	12.0	29.2	11.5	—0.5
18	29.6	12.2	28.2	11.6	—0.6
19	25.8	11.9	27.6	10.5	—1.4
20	29.2	27.7	27.7	11.1	—0.5

* In the table T. D. indicates thoracic diameter (transverse); H. D., heart diameter (transverse). All measurements are in centimeters.

Cannot the contracted hearts of athletes, especially those in a condition of collapse, be explained as some form of muscle cramp which results in a smaller or contracted heart, the clinical collapse accordingly being due to a cerebral anemia, and may not this be nature's method of protecting the heart from immediate permanent harm?

520 Commonwealth Avenue.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS APPROVED THE FOLLOWING ARTICLE.

H. J. HOLMQUEST, Secretary.

MASSAGE

RALPH PEMBERTON, M.D.
PHILADELPHIA
JOHN S. COULTER, M.D.
AND
HARRY E. MOCK, M.D.
CHICAGO

Massage is one of the oldest physical therapy procedures known to the medical profession. Hippocrates about 430 B. C., in discussing the treatment of a dislocated shoulder, following reduction, said:

> And it is necessary to rub the shoulder gently and smoothly. The physician must be experienced in many things, but assuredly also in rubbing; for things that have the same name have not the same effects. For rubbing can bind a joint which is too loose and loosen a joint that is too hard. However, a shoulder in the condition described should be rubbed with soft hands, and above all things gently; but the joint should be moved about, not violently, but so far as it can be done without producing pain.

It is fitting, therefore, that a manual on physical therapy should start with massage. In this day when so much has been written concerning various forms of physical therapy requiring expensive machines and apparatus for its application, many of the profession are apt to overlook the fact that one of the greatest physical measures lies in the hands of a well trained technician, intelligently directed by a physician. Massage, passive and active exercise, muscle training exercises and the application of heat represent practically the only physical therapy needed in the great majority of medical or surgical conditions.

PHYSIOLOGY OF MASSAGE

Explanation of the influence of massage has been long in forthcoming, although use of the measure itself, as already noted, goes back to the earliest periods of history. Clinical medicine and successful forms of treatment often run ahead of precise knowledge of the premises from which they arise. It becomes important, however, and even necessary, sooner or later, to acquire such precise knowledge. This is eminently the case with that measure of therapy known as massage. Not only is knowledge of the nature of the influence which massage exercises desirable on physiologic grounds, and because of the light thus incidentally thrown on pathologic processes favorably affected by it, but especially today is it important to refer, if possible, the alleged benefits from this measure to definite facts and principles rather than to clinical impressions, with the aim of counteracting the obloquy that misuse of massage has, in some part, cast on it. There is probably no other measure of equal known value in the entire armamentarium of medicine which is so inadequately understood and utilized by the profession as a whole. Although the clinical results of massage are undoubted and often graphic, it has been and still is difficult to determine the factors that are most directly operative.

A great deal of investigative work was carried out in the latter part of the last century, more or less contemporaneously with the development of the so-called Swedish school of physical therapy, and in 1910 Rosenthal [1] reviewed the literature to date in a monograph on the scientific basis of massage. Since that time, however, more modern methods of physiologic and chemical investigation have been developed, and the subsequent literature from this standpoint has not been extensive. Most of the data to be derived by studies along these lines are of a negative nature, but they serve nevertheless to delimit the problem in a fairly satisfactory manner.

A number of the investigators of twenty or more years ago observed an increased excretion of urinary nitrogen following massage. Bendix [2] and Voight [3] carried out more carefully conducted experiments in which the food intake of the subjects studied was controlled. These workers independently observed an increased excretion of nitrogen during the twenty-four hour period in which massage was administered, and a heightened excretion of urinary nitrogen continued decreasingly for several days after the administration of massage, before it returned to the previous level. According to Eccles [4] there takes place an increased output of uric acid on those days during which massage is given. In line with these indications of the influence of massage on metabolism were the observations of Leber and Stüve,[5] who reported an increase of from 10 to 15 per cent in the oxygen consumption and carbon dioxide production following either general or abdominal massage. Diuresis has been a consequence frequently observed by many workers,[6] and this diuresis may persist for several days.

In the attempt to ascertain more accurately the specific influence, if any, of massage on certain factors in metabolism, an effort was made by one of us (R. P.) and his associates [7] to determine the rate of excretion of several other constituents of the urine. For this purpose the hydrogen ion concentration, titratable acidity, sodium chloride, inorganic phosphorus, total nitrogen, creatinine and creatine were noted. The increased volume of urine noticed by others was again observed, especially after abdominal massage, and occasionally there was a true diuresis. It is probable that this diuresis is due in part to the abdominal pressure exercised, as Griffith and Hansell [8] found diuresis to occur following abdominal pressure alone, and Bazett and his associates [9] observed it following pressure of water on the abdomen during immersion of the body in a bath. Herxheimer, Kost and Wissing,[6] however, believed the diuresis to be referable to a direct effect on the muscular tissues, either mechanical or by way of the nervous system. It is probable that the direct muscular influence and the abdominal influence are independent.

In the work of one of us [7] the excretion of acid was not observed to be altered after massage, and there was no disturbance of the acid-base equilibrium of the blood. An increased rate of excretion of nitrogen,

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4. Eccles, A. S.: Practice of Massage, London, 1898.
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7. Cajori, F. A.; Crouter, Caroline Y., and Pemberton, Ralph: The Physiologic Effect of Massage, Arch. Int. Med. **39**: 281 (Feb.) 1927.
8. Griffith, J. Q., and Hansell, H. R.: Am. J. Physiol. **74**: 16 (Sept.) 1925.
9. Bazett, H. C.; Thurlow, S.; Crowell, C., and Stewart, W.: Am. J. Physiol. **70**: 430 (Oct.) 1924.

inorganic phosphorus and sodium chloride was observed more frequently following massage than during the control period. The rate of excretion of creatinine was apparently not influenced, and in no case was creatinuria induced. Kost [10] and Schneider [11] found, in contrast to the earlier work of Leber and Stüve,[5] that oxygen consumption was not influenced by the customary forms of massage unless associated movement was induced.

In general, therefore, the results described suggest a broad and generic influence, and that massage has no immediate or large effect on general metabolism per se. The cumulative effect which massage nevertheless exercises on various metabolic processes probably lies, as Rosenthal believed, in its mechanical influence on the circulation of the parts concerned.

Attention should be directed to other studies which substantiate this general point of view and furthermore make it possible more nearly to define the general nature of the influence of massage. Reference to this work will also be made under a discussion of the influence of heat, but it is appropriate again to direct attention to the matter at this point.

It is generally recognized that massage achieves some of its best results, especially over limited areas of the body, when preceded by exposure of the given part to external heat. The complementary action of these two measures is therefore worthy of attention. Furthermore, it is generally recognized that massage, exercise and exposure to heat constitute a triad of measures or agencies which more or less replace or complement one another in the treatment of certain pathologic conditions, such as trauma to joints or muscular tissue and rheumatoid or arthritic processes in them. In a study of the respective physiologic influences of these three measures, however, certain sharp differences can be detected. With exposure of the whole body to heat, for instance, there takes place an acceleration of the rate of respiration and of the general circulation. One consequence of the increase of respiration is a washing out of carbon dioxide from the lungs. Sweating is also induced, and a small amount of carbon dioxide, together with small quantities of other acid products such as lactic acid, is eliminated through this channel. Salt and some nitrogenous constituents are also carried away in the sweat. The urine normally contains carbon dioxide and various quantities of acid substances, such as phosphates, sulphates and inorganic acids; but, following systematic exposure to heat, the amounts of these substances in the urine are increased.

The net result of these several processes is to remove from the body certain acid radicals, chiefly carbon dioxide, which creates within the body a relative alkalosis. The relative excess of alkali then alters the reaction of the blood, and the alkali itself is in turn eliminated through the sweat and the urine, producing an alkaline swing in each of them.

This general condition of alkalosis of the fluid tissues of the body following exposure to heat is in marked contrast to the results of exercise. Thus, Barr and his co-workers,[12] following the work of Haldane, have shown that actively contracting muscles bring about the production of lactic acid in amounts sufficient to change the reaction of the blood in the opposite direction; namely, toward acidosis. This increased acidity may persist for as much as fifty minutes after an amount of exercise equivalent to 3,500 kilogram meters in three and one-half minutes. This is about comparable to the amount of exercise taken by a man weighing 150 pounds (68 Kg.) climbing 150 steps at the rate of one step a second.

It would appear that massage partakes somewhat of the nature of exercise, but studies from the chemical standpoint show that this is not wholly the case. After massage, given as vigorously as was clinically practicable to individuals unaccustomed to it, there developed none of the evidences of acidosis, such as follows active exercise. There was no increase in the lactic acid of the blood, and the urine showed no constant increase in organic acids, as would have been presumably the case had lactic acid been produced and eliminated in the manner described by Wilson.[13] After massage of considerable severity the hydrogen ion concentration of the blood showed no change comparable in magnitude to that following exercise of the extent mentioned. There took place in some cases a slight decrease in alkalinity, corresponding to changes observed by Barr after very mild exercise. It is to be borne in mind, however, that the massage administered was as vigorous as could be tolerated within therapeutic limits. There was furthermore no change in the percentage saturation of the blood with oxygen, such as follows exposure to heat, and there was therefore no evidence of a heightened rate of circulation. The oxygen capacity rose slightly, though unmistakably, a point that has a significance to be mentioned later.

Massage is accompanied, therefore, by neither the alkaline swing following exposure to heat nor the acid swing following active exercise. The apparent absence of detectable changes in the chemical equilibrium of the fluid tissues adequate to explain the benefits resulting from massage emphasizes the presumable influence of the mechanical factors accompanying and characterizing it. In this connection, Krogh and his co-workers have amply demonstrated the effect of external stimuli on the capillary circulation. Carrier [14] has shown that light pressure produces an almost instantaneous though transient dilatation of the capillary vessels, although heavier pressure may produce dilatation of more enduring nature. Microscopic observation of fields in which only a few capillaries are open, and hence in which only a few can be seen, reveals that pressure of this kind may cause practically all the smaller vessels to become visible because of the blood flow created through them. According to A. E. Cohn,[15] this general response may occur in very young blood vessels that are not innervated and is then apparently a direct function of the intensity of the stimulus. The influence thus exerted on the total quantity of blood flow through a massaged area, and in the direction of sweeping along the stagnant cells lying inactive within it, needs no emphasis.

Further evidence illustrative of such an influence is to be seen in the effects of general massage on the blood count. Mitchell [16] showed in 1894 that in both health and anemia the red cell count is increased after massage. This is especially the case in anemia, in which condition the increase is greatest one hour after treatment, beyond which period it slowly diminishes. Schneider and Havens [17] have also shown that abdomi-

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11. Schneider, E.: Zentralbl. f. Chir. **55**: 390 (Feb. 18) 1928.
12. Barr, D. P.; Himwich, H. E., and Green, R. P.: J. Biol. Chem. **55**: 495 (March) 1923.
13. Wilson, D. W.: Proc. Soc. Exper. Biol. & Med. **21**, May 24, 1924.
14. Carrier, E. B.: Am. J. Physiol. **61**: 528 (Aug.) 1922.
15. Cohn, A. E.: Read before the Cosmopolitan Club meeting, Rockefeller Institute, New York, March 22, 1930.
16. Mitchell, J. K.: Am. J. M. Sc. **107**: 502, 1894.
17. Schneider, E. C., and Havens, L. C.: Am. J. Physiol. **36**: 380, 1915.

nal massage alone will increase the hemoglobin and red cell count in blood taken from the finger at ordinary barometric pressures. These workers have demonstrated that, following acclimatization to altitudes, the extent of such increases diminishes and the increases themselves finally cease. They interpret this finding as due to the lowered barometric pressure, which brings into the circulation many red corpuscles usually contained within closed or inactive areas. Scott,[18] however, believes that concentration of the blood affords the explanation. At all events, the influence of massage in the direction of an increase in the hemoglobin and red cells of the circulating blood is beyond question, whether or not any factors additional to the mechanical influences are operative. The limited but definite rise observed, as already mentioned, in the oxygen capacity of the blood after massage also bears this out. It is difficult, therefore, to escape the conclusion, already mentioned, that an important influence of massage is on the local circulation of the parts treated, and so, more or less, on the circulating fluids of the body as a whole.

In contrasting the effects of active muscular exercise and those of passive muscular exercise in the form of massage, another point of importance emerges. The development of lactic acid in the circulating blood, and hence a systemic acidosis, may follow relatively mild exercise. As pointed out, massage given as vigorously as could be tolerated is probably as nearly comparable in severity to mild exercise as can well be the case in contrasting measures of a different order. Evidences of this severity are to be seen in the fatigue experienced by the subject of the massage. It would therefore appear justifiable to conclude that, whereas lactic acid is produced by contraction of muscle following volitional effort on the part of the individual, it does not arise, at least in significant amounts, as the result of extraneous mechanical stimuli applied to the muscle within therapeutic limits. This is true also as regards stimulation of the muscle by the faradic current.[19] This conclusion is of importance because it seems to explain the value of massage to the exercised muscles of human athletes and even of horses. This beneficial influence is well known to athletic trainers and is also widely utilized by them in connection with traumatized muscles. Were it not for the fact that massage produces no important additional amounts of lactic acid, its favorable influence on overexercised muscle could hardly be explained. In the absence of any further burden in this regard, changes in the blood supply of muscle brought about by massage permit presumably of more rapid or more thorough removal of the lactic acid already contained within such tissues.

While the more subtle physiologic and chemical changes following massage are difficult of measurement, it is easy to recognize clinically the mechanical value of this agency in returning fluid from the fixed tissues to the general circulation. This can well be seen in a gross way by observing the effect of upward stroking and massage on edema of the extremities following cardiac decompensation, and especially on the edema secondary to the dependent position of the feet sometimes encountered in chronic arthritis. In this general mechanical influence the lymphatics are probably also involved, though the extent of this is difficult of determination.

Another influence of massage should be mentioned from the clinical standpoint, although it would be unwise to make any postulates regarding it. It is generally accepted that at least some of the important phases of carbohydrate metabolism either take place in, or are inaugurated in, muscular tissue, which apparently shares with the liver a leading rôle in this respect. Clinical recognition of this is to be seen in the accepted advocacy of controlled muscular exercise in diabetes. It is difficult to escape the suspicion that, under conditions of muscular atrophy, such as are seen, for example, in advanced cases of chronic arthritis, there can hardly be maintained that balance of general metabolism characteristic of the normal and well muscled individual. However this may be, there can be small doubt that definite clinical improvement occurs in individuals who are the subject of widespread muscular atrophy if the involved muscles are given the benefit of systemic and sustained massage. Improvement in the tone and firmness of the muscle runs roughly parallel with the general clinical betterment and constitutes part of a reconstructive cycle in which the better function, better posture and greater activity thus induced are important factors.

It would be improper to suppose that the general effects of massage on the circulation are brought about through mechanical agencies alone. There can be small doubt that the nervous system contributes under massage, probably through the sympathetic division, to a reflex influence on the blood vessels of the parts concerned. Dilatation of the small vessels following very light stroking affords illustration of the nervous mechanism operative. It is probable, therefore, that vessels within the muscular system or elsewhere are emptied during massage not by virtue alone of being squeezed but also through this reflex action. Because of this, or for other reasons, there seems to be exercised an indirect effect on the system as a whole which may take the form of mild stimulation, mild sedation or exhaustion. Under appropriately controlled circumstances, this influence should be mildly sedative or slightly stimulating but never exhausting.

Finally, as mentioned in the section on the technic and practice of massage, it is important to bear in mind that in inactive persons, such as those confined to bed, massage may compensate for lack of that contraction of the muscles of locomotion on the larger blood vessels that normally contributes to the return of the venous blood to the heart. This influence of massage is available in certain stages of cardiac decompensation, but it is not utilized clinically to the extent that it should be.

While the influence of massage on the end-products of metabolism is being discussed, it must be borne in mind that a necessary consequence of dysfunction of muscle tissue, for which massage is often indicated, is the production in the muscle of some of the products of dysfunction. Massage is capable of promoting the removal of some of these substances, as is well exemplified in its influence on the extravasations of blood and other kinds of débris consequent on traumatization of muscle or other tissue. The only medium of removal of these substances is the circulation, either the lymphatic or the blood vessel system. It follows, therefore, that the removal of these substances under the influence of massage involves an acceleration of those measures which nature, unaided, attempts. The economy as a whole, therefore, may find it difficult under some circumstances to adapt itself to this added quota of the products of faulty physiologic

18. Scott, F. H.: Am. J. Physiol. 44: 298 (Oct.) 1917.
19. Cajori, F. A., and Pemberton, Ralph: The Nature of the Response of the Muscles to Faradic Stimulation, J. A. M. A. 90: 748 (March 10) 1928.

functioning. In certain individuals, chiefly the elderly and the feeble, this difficulty may express itself in terms of a mild toxemia accompanied by fever. What the substances are that produce this result it is impossible now to say with precision, but the consequence to elderly persons may be the addition of a toxemia other than the one from which the patient is already suffering. This is sometimes a practical matter of great importance.

TECHNIC OF MASSAGE

The elementary principles are all that it is necessary for the physician to know about the technic of massage in order to convey to the technician in his prescription the kind of massage he wants and the dosage. In writing for a drug he does eactly the same thing—names the specific drug and the dosage. The physical therapy technician usually knows more of the actual technic than the physician, just as the druggist usually knows more of the actual chemistry of the drug. But the physician should know more of the indications and contraindications for and the effects of massage and of drugs than either the technician or the druggist.

There are three main varieties of manipulations included under the head of massage: stroking, compression and percussion.

1. *Stroking Movements.*—(*a*) Superficial Stroking: This consists of the passage of the hand over an area of the patient's skin with a slow, gentle and rhythmic movement. This form of massage aims to produce only a reflex effect. Therefore the movements must be slow, gentle, rhythmic and in one direction. This is a simple form of massage, but the technic can be mastered only by long practice. The four main points must be observed or the reflex soothing effect is lost and the movement becomes irritating.

The time of the movement is slow in order to be rhythmic and the technician's movement is continuous and in the same tempo even when the hand is not in contact with the patient.

To secure the reflex effect the pressure must be gentle. It should be firm but light, with the hand adapted to the contour of the patient's body, a combination which can be secured only with the muscles of the hand relaxed.

Rhythmic movements are also essential to secure an even stimulus. This is attained by making the time identical between the beginning and the end of each stroke and between strokes. The direction of the movement is unimportant in this form of massage provided it is always the same.

(*b*) Deep Stroking Massage: The aim of this form of massage is to empty the veins and lymphatics and to press their contents in the direction of natural flow.

The essentials here are to have the patient's muscles relaxed to take advantage of gravity, to make the movements deep but not heavy and to make them always in the direction of the venous flow.

It is important to have the patient's muscles relaxed; otherwise muscle contraction will reduce the lumen of the veins and prevent the chief object of this form of massage. To secure relaxation, the patient should always be recumbent even when deep massage is being given to an extremity. Otherwise, when massaging the forearm, one cannot expect to influence the venous flow if the shoulder and arm muscles are contracted.

The recumbent position also enables one to take advantage of gravity as an aid to the venous and lymphatic circulation. For example, when a patient is sitting in a chair with his forearm on a table and his arm hanging from the shoulder, gravity opposes the venous flow. Many a physician in prescribing massage has missed the importance of these finer points in technic.

Deep movement with the muscles relaxed is transmitted to all the structures under the hand. Heavy pressure is not needed, as the venous pressure is slight and a heavy and irregular movement may set up a protective reflex muscular contraction to defeat the purpose of the treatment.

The direction is always with the venous flow. In this form of massage of the limbs, the proximal segment should be treated in the beginning. If the venous and lymphatic circulation of this area is not improved at the outset, the distal segment will be blocked.

2. *Compression Movements.*—(*a*) Kneading: This consists in grasping, wringing, lifting, rolling or pressing a part of a muscle or a muscle group. This form of massage aims to assist venous and lymphatic circulation, to hasten the removal of waste products from muscle, to stretch retracted muscles and tendons, and to aid in stretching adhesions. While it may be used after exercise to remove waste products and thus render muscles more ready to exercise again, neither this nor any other form of massage can develop muscular strength.

Absolute relaxation of the patient's muscles is essential for effective kneading. Too heavy pressure may force the arterial blood against the stream. Moderation in pressure, timing of movement and direction are again necessary.

The operator's hand grasps a part of the muscle (or a group of muscles), lifts it up as much as possible, and kneads it. Then the hand moves up a hand's breadth and repeats the same manipulations. One or both hands may be used. When the muscles cannot be lifted, as on the back, the movements may be one of rolling or pressing one muscle over the other. In kneading, a thorough knowledge of the anatomy of the muscles is essential.

(*b*) Friction: This consists in pressing deeply on the part under treatment and moving the hand in a circular direction, which means usually moving the skin over the underlying parts. The effect of friction is to free adherent skin, to loosen scars and adhesions of deeper parts, such as tendons on the back of the hands, and to aid in the absorption of local effusion.

Friction is an important massage manipulation for the smaller parts, such as the hand, foot and face.

The movement is done with one or two fingers or a part of the hand closely applied to the skin, motion being over the underlying tissue in small circles or in other directions.

Again, the pressure should be moderate and the movement should have a certain rhythm. This pressure can later be increased progressively if conditions are favorable.

3. *Percussion Movements.*—(*a*) Clapping consists of bringing the hands, held partly open so that the fingers and palm form a concave arch, alternately into contact with the patient's body. The movement is performed chiefly from the wrists.

(*b*) Hacking is done by striking the patient with the ulnar side of the fingers so that the fifth finger comes in contact with the body first and is followed by the others in quick succession.

(*c*) Slapping is done with the palm of the open hand.

(*d*) Tapping is done with the tips of the fingers, which are used as in piano playing.

(*e*) In beating the half-closed fist is used to percuss the body. These movements are mostly used on healthy persons and are usually employed in gymnasiums and in Turkish bath establishments.

The first effect of percussion on the skin is a blanching due to a contraction of the arterioles from the mechanical stimulation. This is soon followed by a redness which is due to a paralytic dilatation of these vessels from overstimulation. This circulatory effect can be secured better in most cases by other means, such as the whirlpool bath or contrast baths.

Another effect claimed for percussion movements is muscular stimulation. When apparatus is available, this effect can be achieved better in most cases by electrical muscle stimulation.

4. *Vibration and Shaking.*—(*a*) Vibration is performed with several fingers or the whole hand placed firmly on the patient's body while a trembling movement is conveyed by the operator.

(*b*) Shaking is a larger movement of the same kind but is merely coarse vibration. Both vibration and shaking are often employed with one of the three main manipulations.

In movements of deep stroking and kneading made with the muscles correctly relaxed, the effect of vibration and shaking is also achieved. Mechanical means have been devised to give these forms of massage, and the ease of application has led manufacturers selling such apparatus to the public to advance extravagant claims as to the benefits induced.

MECHANICAL MEANS FOR MASSAGE AND EXERCISE

Dr. Gustaf Zander of Stockholm, about 1857, was the first to use mechanical means for massage and exercise. His machines will do anything that any of the highly advertised mechanical vibrators will do. These machines were given a trial in this country, and several large hospitals completely equipped Zander rooms. These forms of apparatus have fallen into disuse, as will the present widely advertised mechanical exercisers, for the following reasons:

1. The point of view that their use develops in the patient is wrong. The advertisements and the instructions for their use convey the impression that the machine will do the work necessary to cure the patient and that the patient does not have to work. Volitional effort is not encouraged, and the machine is regarded as the only factor in the cure. The more expensive the apparatus or installation, the more this thought will be developed.

Our experience in treating war and industrial injuries has shown that mechanical passive exercise will do less than active exercise, with or without apparatus, and that active exercise without a purpose will do less than curative occupational therapy or exercise with a definite purpose. This is based on two well known facts; first, that muscular strength is increased only by active muscular action; and, second, that the best type of exercise is that which requires coordinated movements with a purposeful end, such as are involved in the ordinary trades and occupations.

These machines do not develop volitional effort of any kind—the work being done for and not by the patient. This develops a poor mental attitude in a patient and will react to his detriment.

2. These machines do nothing that cannot be accomplished equally well by simpler apparatus or none at all. For instance, many of these machines are sold to reduce excessive abdominal adipose tissue. In these cases the same results could be accomplished by leg and abdominal exercises without apparatus, with the patient giving himself heavy kneading massage at the same time that he is taking his exercises. In most cases, for general weight reduction much better results could be attained by a walk or a slow run in the fresh air.

3. These machines treat only one part of the body at a time and do not have the advantages of general exercise in developing other parts of the body. Vibratory massage of the abdomen with a strap attached to a motor for ten minutes cannot give as much benefit as does a ten minute fast walk with conscious effort given to pulling in the stomach. The benefit of deep breathing, exercise of many muscles and increase of circulation is actually obtained under the latter conditions.

4. The use of apparatus is stereotyped and monotonous. The physician prescribing one of these machines is making the same mistake that he would by prescribing only one form of massage or exercise. The patient will soon tire of its use. This form of massage vibration and shaking has little place in treatment, and better results could be secured by definite exercises varied enough to prevent monotony or by occupational therapy to prevent loss of interest.

5. The physiologic effect of mechanical exercisers is the same as of that form of massage which gives vibration and shaking. The effect of this form of massage has not the same effect as active exercises and cannot have the same benefits.

6. These mechanical exercisers are actually dangerous. The Council on Physical Therapy has records of severe injuries caused by these machines—a ruptured appendix, hernias, ruptured bladder, ruptured duodenal ulcer, pleurisy with effusion, and torn penis. These cases were reported by physicians as actual results of the use of these appliances.

The Council on Physical Therapy of the American Medical Association therefore condemns the sale of these mechanical exercisers to the public for the following reasons:

1. Volitional effort is not encouraged.
2. The same results could be accomplished without an apparatus.
3. Treating only one part does not give any of the advantages of general exercise.
4. The use of such apparatus is monotonous and the patient loses interest in treatment.
5. The effect is that of massage and lacks the physiologic benefits of exercise.
6. Such apparatus is definitely dangerous.

MASSAGE IN SPRAINS

The best treatment for sprains is frequently given by trainers for various athletic teams. Physicians generally could learn from these trainers many important points in the technic of the treatment of recent injuries. These trainers are paid to keep men in the game and to get them back quickly if they are injured. The excellent results obtained are due to the trainers' willingness to take time to treat minor injuries and the fact that the patients have the time to devote to the care of an injury that in business is usually not thought series enough to justify the effort required for proper treatment.

As physicians we often have all these factors present, but we are so accustomed to treat sprains and strains by immobilization and rest that we neglect the use of proper massage, bandaging and mobilization.

*Suggestions for Starting Physical Therapy in Fractures**

Bone	Part of Bone	Immobilization	Position	Duration of Splinting	Convalescent Brace	Physical Therapy: Time to Begin	
						Massage	Active Motion
Clavicle	Outer, mid inner thirds	1. Clavicular cross	Shoulders; back up and out	3 to 5 weeks	None	None	Immediate
		2. Sayre	Same	3 to 5 weeks	None	10 days	2 weeks
Scapula	1. Body	Sayre	Arm to side	4 weeks	Sling 2 weeks	1 week	4 weeks
	2. Neck	Sayre	Arm to side	4 weeks	Sling 2 weeks	1 week	4 weeks
Humerus	Anatomic neck	Abduction splint	Arm abducted	6 weeks	Sling none to 2 weeks	2d day	5 weeks; elbow at once
	Tuberosities	1. Splint	Arm abducted	6 weeks	Sling none to 2 weeks	2d day	5 weeks; elbow at once
		2. Operation					
	Epiphyseal separation	Abduction splint	Arm abducted and external rotation	6 weeks	Sling none to 2 weeks	2d day	2 to 4 weeks; elbow at once
	Surgical neck	Thomas arm or airplane	Arm abducted and slight forward flexion	6 weeks	Sling none to 2 weeks	1st week	4 to 8 weeks; elbow at once
				6 weeks	Sling none to 2 weeks	1st week	4 to 8 weeks; elbow early
		Operation	Abducted	6 weeks	Sling none to 2 weeks	1st week	4 to 8 weeks; elbow early
	Shaft	1. Jones humerus splint	Arm to side	4 to 8 weeks	Coaptation splints and sling 2 to 4 weeks	3d week	6 to 8 weeks; elbow at once
		2. Traction in Thomas arm splint	Abducted	4 to 8 weeks	Coaptation splints and sling 2 to 4 weeks	1 to 3 weeks	
		3. Operation	Abducted	4 to 8 weeks	Coaptation splints and sling 2 to 4 weeks	1 to 3 weeks	
	Lower end 1. Supracondylar 2. Diacondylar 3. External condyle 4. Epiphyseal 5. Internal condyle 6. Intercondylar 7. Epitrochlear	Plaster-of-paris splint	Elbow hyperflexed	2 to 3 weeks	Sling 3 weeks	On removal of plaster splint	3 weeks; avoid passive motion because of danger of excessive callus or myositis ossificans
Ulna	Olecranon	Molded splint	Extension	2 to 4 weeks	Sling 2 weeks; gradually increasing flexion	1 week	2 to 3 weeks
	Coronoid	1. Molded splint	Flexion	2 to 4 weeks	Sling 2 weeks	1 week	2 weeks
		2. Strapping					
	Shaft alone	Molded splints	Midpronation	3 to 4 weeks	Sling 2 weeks	1 to 3 weeks	2 weeks
Radius	Head	1. Anterior angular splint	Elbow at right angle in full supination	2 to 3 weeks	Sling 1 to 2 weeks	3d day	Flexion 1 week; pronation and supination 2 weeks
		2. Operative remove head	No splint	.....	None	3d day	3d day
	Shaft alone	Molded splints	1. Above insertion of pronator teres; supination; elbow at right angle 2. Below pronation with elbow same	4 to 6 weeks	Sling 2 to 3 weeks	1 week	2 to 4 weeks
Both bones	Shafts	1. Anterior and posterior wooden splints; plaster splints	Forearm supinated; elbow flexed to right angle	5 to 7 weeks	Sling 2 to 3 weeks	1 week	4 to 6 weeks
		2. Thomas arm and traction	Same	5 to 7 weeks	Same	1 week	4 to 6 weeks
Radius	Colles'	Molded plaster	Hand abducted, pronated and flexed	2 to 3 weeks	Wrist strap 1 to 5 weeks	2 days	1 week
Carpus	.....	Molded plaster; cock-up	Hand extended at wrist	4 to 6 weeks	Wrist strap 2 to 6 weeks	1 week	4 to 6 weeks
Metacarpus	Shaft	Traction in banjo splint	Extension	3 to 5 weeks	None	2 days	3 weeks
		Ball in palm	Fingers flexed	3 to 5 weeks			
Phalanges	Shaft	Finger splint	Flexion or extension	3 weeks	None	3 days	3 weeks
		Traction in finger calipers	Extension	3 weeks	Palmer splint 1 to 2 weeks	2 days	3 weeks
Pelvis	Any bone	Swathe and suspension in Balkan frame	Supine	4 to 12 weeks	Preferably none	1 week	5 to 8 weeks
		Rest in bed only	.....	4 to 12 weeks	Belt		
Femur	Neck 1. Impacted 2. Displaced	Whitman position; plaster spica to toes and opposite side	Full abduction; extension; internal rotation	12 to 15 weeks	Calipers and crutches 6 to 9 months; weight bearing 6 to 9 months	12 to 15 weeks	12 to 15 weeks
	Intertrochanteric and base of neck	Same	Same	8 weeks	Calipers and crutches 4 to 6 months	8 weeks	8 weeks
	Shaft	Thomas splint with traction	Hip flexion; knee flexion; abduction?	Skin or skeletal traction 5 to 9 weeks	Calipers and crutches 3 to 6 months	Immediate	Knee 2 to 4 weeks
	Supracondylar	Same	Hip and knee flexion	Skin or skeletal traction 5 to 9 weeks	Calipers and crutches 3 to 6 months	Immediate	Knee 2 to 4 weeks
	T fracture into knee joint	Same	Hip and knee flexion	5 to 9 weeks	Same as above	Immediate	2 weeks
	Separation of lower epiphysis	Plaster cast; toes to groin	Knee flexion	3 to 4 weeks	Plaster cast gradual extension of knee	3 to 4 weeks	3 to 4 weeks
Patella	.....	Post splint or operation	Extension	Post splint or split cast 1 to 3 weeks	Molder plaster posterior 4 to 10 weeks	Immediate if possible	7 to 10 days when wound is healed

Suggestions for Starting Physical Therapy in Fractures—Continued*

Bone	Part of Bone	Immobilization	Position	Duration of Splinting	Convalescent Brace	Physical Therapy: Time to Begin	
						Massage	Active Motion
Tibia	Tuberosities	Thomas splint and traction 4-6 weeks Plaster splint or splint cast	Extension	Same as above	Calipers 4 to 12 weeks	Immediate	2 weeks
	Shaft or both bones	1. Thomas and traction 2. Operation 3. Plaster cast 4. Plaster splint	Knee flexion; foot at right angle; avoid rotation	6 to 8 weeks	Caliper or delbet 4 to 8 weeks; plaster splint 4 to 8 weeks	1 week	4 to 6 weeks
Fibula	Shaft	Molded plaster toes to knee or just above knee	Knee flexion	3 to 4 weeks	None	2 weeks	2 weeks
	Potts	Plaster toes to knee	Dorsal flexion and inversion of ankle	4 to 6 weeks	Short calipers; felt foot pad and Thomas heel	Immediate	2 weeks
Os calcis	.....	1. Plaster 2. Operation	Slight plantar flexion and inversion	6 to 10 weeks	Felt foot pad; Thomas heel; inner borders; shoe and heel raised ⅛ to ¼ inch	2 to 3 weeks	4 to 6 weeks
Tarsus	.....	1. Plaster cast 2. Operation	Right angle flexion and inversion	4 to 6 weeks	Same as above	3 to 4 weeks	4 to 6 weeks
Metatarsus	Shaft	Davis splint or cast	Inversion and plantar arch preserved	4 to 8 weeks	Same as above	3 to 4 weeks	4 to 6 weeks

* This table was adapted from "Outline of Treatment of Fractures," Archives of Surgery, January, 1923, p. 172.

Mennell expressed the keynote of the treatment of recent injuries when he said that we cannot heal torn fibers by massage but can assist in restoring the circulation on which depends the repair not only of these fibers but of all the various injuries that have been sustained.

Accompanying a sprain there are often torn ligaments, a tenosynovitis and a traumatic arthritis. There is hemorrhage from the torn vessels. There is muscular spasm and this, with the local swelling, interferes with the venous circulation. But often there is swelling both above and below the joint which the local conditions could not cause. This is undoubtedly due to a reflex disturbance of the vasomotor mechanism from injury to the nerves.

Therefore the kind of massage at first used is superficial stroking with the whole limb in a position to relax all the muscles and to take advantage of gravity. This massage aims to restore vasomotor tone to prevent further effusion. This is aided between treatments by proper compression—bandaging or strapping. Later, deep stroking massage and kneading may be used to secure diffusion of the exudate at the site of the injury.

For instance, in the treatment of a severely sprained ankle, the ankle is often tightly strapped and the patient sent home with directions to rest and apply some form of heat. Far better results as to the relief of pain and the restoration of function could be secured if the patient were treated as follows:

The first day the bandage or strapping is removed and, with the patient lying on a couch with a pillow under the knee and some support to keep the foot straight, heat is applied in some form, either direct diathermy or radiant heat, for twenty minutes. Then superficial stroking massage is begun over the whole foot and leg, the movement being started at the upper border of the swelling. Deep stroking follows this above and below the ankle, the painful area being gradually approached. The massage is continued for twenty minutes. This is followed by knee and toe motions. The bandage or strapping is reapplied.

If possible, this treatment is given twice on the first and second days, and once on the third day.

The fourth day deep stroking massage, kneading and friction massage are given as on the first day, also relaxed movements of plantar and dorsal flexion of the ankle to the point of pain. The massage should be given over the injured area if there is no pain. Any motion should be limited by the onset of pain. The foot should always be supported when massage or motion is given so as to prevent any further strain of the injured ligaments.

The fifth day the massage is increased over the injured area, and ankle motion is increased. If strapping or a bandage is correctly applied and the pain and swelling are not severe, walking may be started.

The support of the bandage or strapping is gradually decreased, the firmness of massage is increased and walking is gradually allowed.

DISLOCATIONS

In a dislocation there is the same pathologic condition as in a sprain, with more severe tearing of the ligaments and a spasm of the muscles controlling the joint. This is usually so severe as to prevent reduction without an anesthetic. After reduction, this spasm is diminished and the condition is the same as a severe sprain with torn ligaments.

The most frequent dislocation is that of the shoulder, and the most usual after-treatment is to keep the arm tightly bandaged to the side for a week or ten days, thus holding the arm in adduction and internal rotation. This treatment should be abandoned by every surgeon. The position of immobilization should be with the arm abducted and externally rotated. The latter position protects the weak group of muscles, the abductors, the deltoid especially, and prevents undue contraction of the strong adductors, the pectoralis major and the latissimus dorsi. Further, this position favors circulation by gravity. Frequently, after a dislocated shoulder is treated by strapping the arm to the side of the body, more trouble results from a stiff shoulder after the adhesive strapping is removed than from the original injury.

MASSAGE IN FRACTURES

In the treatment of fractures we strive for end-results showing the greatest amount of anatomic and

functional restoration. Neither of these should be neglected for the other. Both will be possible with proper reduction by manipulation, traction or operation; proper fixation with splints and traction, plaster casts or operation, and the use of massage and motion with gentleness, patience and skill. It is to be noted that massage and mobilization are not methods of treatment of fractures but are adjuncts to be used in combination with proper reduction and fixation.

Lucas-Championnière developed massage and mobilization in treating fractures. In his day there were no x-rays and modern bone surgery was not possible, so that fractures were put up in splints for long periods, which often resulted in great deformities and poor functional results. His methods of early mobilization and massage were revolutionary, and, as many patients had poor anatomic results, good functional results were an improvement. Few surgeons now apply his teachings literally, as it is believed that both a good anatomic result and a good functional result are possible. But these are possible only if massage and mobilization are used with the object of securing function without disturbing the anatomic result. Therefore, in fractures with great displacement of the fragments, massage and mobilization will have to start at a much later date than in fractures with little deformity in which the fragments are easily held in position. In the latter, massage and mobilization used early and with light protective splinting are the principal factors in treatment.

The approximate time to start massage and motion in the average case of various fractures is set forth in the accompanying table. Until union is firm, no massage should be given over the fracture except superficial stroking. When massage is being given in fractures, the danger signs calling for less treatment are increased tenderness, swelling or stiffness in the adjacent joint.

The first treatment of a fracture with massage should last only a few minutes, and only gentle surface stroking should be given. Great care must be taken to support the fracture. The part should be prepared for the massage with heating, followed, if possible, by a small amount of joint motion, if this can be done without displacement of the fracture. All these are gradually increased, bearing in mind that one is striving to secure union of broken bones as well as return of function. There is no injury in which massage and exercise can be used to greater advantage than in fractures. The general indications as to the time to start these are given only as guides and have to be varied to suit the case, as does the amount and kind of motion and massage. In the early stages the joint movement should be done by the surgeon, the patient being referred to the technician later when union is fairly well started.

In fractures treated with a Thomas arm or leg splint, heat and superficial stroking massage should be started early. Some recent research tends to show that callus is formed along the lines of the new blood vessels formed at the site of fractures, and therefore anything aiding circulation in the area of the fractures without producing motion of the fragments should aid in the deposition of callus.

The physician should supervise all early massage of fractures and should give definite directions about the removal of splints, joint motions with or without the splint, and the amount and kind of massage and exercise. Experience has taught us that, when the surgeon seeks earlier healing and better functional results by the use of massage and exercise, he has assumed a greater responsibility in the case and must guard carefully lest overenthusiasm or errors due to carelessness on the part of the technician may spoil the desired end-results.

STIFF JOINTS

Exclusive of cases of bony ankylosis or cases in which there are pathologic contraindications, massage, exercise and continuous traction or stretching by splints have an important place in the treatment of stiff joints. Adhesions inside or outside such a joint occur in great variety and in a large number of cases are susceptible to stretching.

In this type of stiff joint, deep stroking massage, followed by deep kneading of the muscles above and below the joint, are used. Some one of the methods of heating the limb should precede these manipulations. Friction massage is indicated immediately over the joint. The fingers should work over all the joint, pressing the infiltrated areas and scars. After massage, resistive exercises and passive movements are used.

It is important to remember that such heavy massage, exercises and passive movements may cause some reaction, but if the pain from this passes off in a few hours, it is not detrimental. If it persists longer and there is an increased swelling, injury to the ligaments, muscles and vessels with effusion, which may organize into more adhesions, has undoubtedly occurred. In such an event massage and exercises should be abandoned, the joint put at rest and heat applied until the reaction has passed. Then the efforts should be resumed with less vigor.

In the treatment of stiff joints the patient often expects too much of massage and heat. Active exercise and proper splinting are equally important, and it must be explained to the patient that these agents are to be used in spite of temporary discomfort. Proper splinting with continuous traction is of great value and must not be neglected.

AMPUTATIONS

The best preparation for massage of an amputation stump is the whirlpool bath. Stroking and kneading of the muscles and forcible stretching of the tissues toward the stump are given to prevent contractures. The scar is treated with friction and vibratory massage starting at the periphery and working toward the center. The massage is followed by various exercises, directed first toward maintaining function in the adjacent joints and secondly toward rendering the end of the stump serviceable. Fear of anything or anyone touching the end of the stump is almost universal in patients who have had amputation and is best overcome by massage and exercise.

These manipulations should start just as soon as the condition of the wound will permit, usually by the end of the first week. An excellent means of preparing the patient for these various procedures is to have him start, about the third day, to pound a soft pillow lightly with the end of his stump.

It is well for the surgeon to start giving the massage and exercises to these patients before referring them to a technician. Good results often depend on the proper initial handling of these cases. Kindliness, patience and encouragement are of the greatest importance to the patient who has had an amputation.

MASSAGE IN ANTERIOR POLIOMYELITIS

It is to be remembered that massage will not restore muscular power. It has no direct effect on paralytic diseases. It will not help the transmission of nerve impulses from the brain to the paralyzed muscle.

On the other hand, massage has a favorable effect in stimulating the venous and lymphatic circulation of the limb, and direct manipulation of the muscles also carries away some of their waste products. Therefore massage delays muscular atrophy by inducing better nutrition locally.

As soon as the acute stage of anterior poliomyelitis has passed, as distinguished by the disappearance of pain, massage should be started. This should consist at first of only gentle superficial stroking. If the pain reappears, massage should be stopped. In this condition massage should always be preceded by heat and followed by muscle training. Splinting should be used to prevent deformities by securing physiologic rest of the paralyzed muscles.

The flaccidity of the muscle deprives the blood vessels of the natural protection given them by proper muscle tone, and as the arterioles are extremely delicate it is easy to overdo the massage, produce paralytic dilatation of these arterioles and increase the condition one is striving to overcome. Therefore the massage should be delicate and given for a short period, and the paralyzed muscle should not be pressed between the fingers or against the bone.

Overuse of massage by too long or rough treatments increases muscular atrophy and diminishes muscular tone by injuring the muscular fibers and causing fatigue.

This disease will be considered in a later article.

PERIPHERAL NERVE INJURIES

What has been said about anterior poliomyelitis can be repeated for all peripheral nerve injuries. The treatment here is the daily application of heat, proper massage with gentle stroking and kneading of small areas, and passive joint motions. Electrical muscle stimulation is an aid which, when overused, causes the same effects as overuse of massage. Two or three contractions of each muscle daily is ample. Again, it is important to remember that there is no muscular protection for the delicate vessel walls and only the most gentle manipulations are essential. All deep kneading, compression and vibrating movements are contraindicated. Even in the stroking movements, care must be taken not to compress the muscles against the underlying bone.

Massage is only one agent to be used and has no effect unless there is proper splintage to prevent the healthy muscles from contracting and the paralyzed muscles from overstretching. Massage should not be allowed to replace muscle reeducation movements, as muscle strength is increased only by active exercise.

SPASTIC PARALYSIS

Massage is given to prevent muscular atrophy and increase muscular tone; and in spastic paralysis, except for mild stroking and kneading, massage is contraindicated, as the muscles are in a state of hypertonicity. The stroking should be firm, slow and even. The kneading is performed with the two hands on opposite sides of the limbs and the pressure should be gentle, although here the pressure can be firmer as the muscle tone is increased and there is not as much danger of injuring the muscle or arterioles as in infantile paralysis.

It is usually an advantage in these cases to precede the massage with heat and to follow it with movement. The difficulty in these cases is to secure motion without exciting spasm.

Massage and passive movements are useful adjuncts to prevent the development of muscular contraction and joint stiffness, but the patient must be made to understand that these maneuvers are not going to restore power in his limb. His participation is essential to reestablish normal impulses from the brain to the muscles. His own effort to accomplish active motion is the most essential element in his treatment.

(To be continued)

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

DESICCATED OVARIAN PREPARATIONS FOR ORAL ADMINISTRATION OMITTED FROM N. N. R.

Believing that the available evidence fails to prove the therapeutic value of desiccated ovarian preparations composed of all or a part of the ovary for administration by mouth, the Council voted to omit all such preparations with the close of 1929 unless new evidence should meanwhile develop making other action justifiable.

Notice of the Council's action was sent to the manufacturers of accepted preparations with the request that the firms present any new evidence that might be available for the value of their respective products. One firm submitted reference to a report of M. Kochmann (*Archiv für experimentelle Pathologie und Pharmakologie* **143**:57, 1929) which it holds to indicate quite conclusively that the various commercial preparations of ovarian hormone in Germany were found to be effective physiologically as claimed by the manufacturers, and, further, that these preparations produce physiologic effects after administration by mouth. However, the work of Kochmann referred to was done entirely by the method of the vaginal smear on rats, which must be held unreliable, since the vaginal smear reaction can be obtained from many substances other than the ovary, for example, yeast; other criteria besides the vaginal smear are necessary in order to be sure that we are dealing with the ovarian hormone. The firm's citation, therefore, offers no reason for delaying the omission of ovarian preparations given by mouth. None of the other firms offered any new evidence.

Frank, in his recently published book The Female Sex Hormone, discusses a number of pharmaceutic preparations supposed to have effect on ovarian and uterine function, stating that he found all of these entirely inactive. Frank's work must be considered authoritative until it is successfully challenged.

No acceptable evidence for the value of desiccated ovarian preparations for oral administration having become available, the Council confirmed its decision to omit from New and Nonofficial Remedies, 1930, the accepted preparations, namely: Ovarian Substance-Armour; Ovarian Substance Desiccated-P. D. & Co.; Ovarian Substance-P.-M. Co., Desiccated; Ovarian Substance-Wilson; Whole Ovary-H. W. & D.; Whole Ovary-Lederle; Ovarian Residue-H. W. & D.; Ovarian Residue-Lederle; Ovarian Residue-P.-M. Co., Desiccated; Ovarian Residue Desiccated-P. D. & Co.; Ovarian Residue-Wilson; Corpus Luteum-Lederle; Corpus Luteum-P.-M. Co., Desiccated; Corpora Lutea, Desiccated-P. D. & Co.; Desiccated Corpus Luteum-Armour; Desiccated Corpus Luteum-Wilson, and Lutein-H. W. & D.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

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SATURDAY, JUNE 21, 1930

INFANTILE PSEUDOLEUKEMIC ANEMIA

The hematopoietic system of the infant, probably because of its greater lability, reacts less characteristically to infection and to the unknown factors that cause progressive hyperplasia of its constituent elements than do the blood-forming tissues of the adult. Infection may lead to lymphocytosis, monocytosis or myelocytosis, which in the adult would arouse a suspicion of leukemia. Hyperplastic states of the hematopoietic system, some of which are associated with characteristic alterations in the circulating blood, present greater difficulties of classification and identification in the child than in the adult. Infectious hyperplasia and acute leukemia, aleukemic leukemia and chloroma, invasive aleukemic leukemia and lymphosarcomatosis, and secondary toxic or nutritional anemia and progressive erythroblastic hyperplasia may shade into each other with such imperceptible gradations that exact identification of any given process is often impossible. This has led to a tendency to describe as definite entities states that are probably only variations of a smaller group of pathologic processes.

In 1889, von Jaksch [1] described a state of anemia in young infants to which he gave the name anemia infantum pseudoleukemica. The qualifying word pseudoleukemica was used because the anemia was associated with an increase in the number of leukocytes in the circulating blood. This increase, however, was largely due to polymorphonuclear leukocytes and not to the immature cells that characterize a true leukemia. The spleen, lymph nodes and liver were enlarged. Since the original publication by von Jaksch there has been much discussion of the nature of the abnormal state described by him. The discussion has centered on the question as to whether the condition is primarily an anemia or a leukemia, a combination of the two processes, or a primary or secondary anemia. Von Leube [2] proposed the name leukanemia, a term that suggests a combination of leukemia and anemia. Many writers have considered the condition essentially a leukemia, the anemia being secondary to the leukemia, as is the rule with the leukemias of adults. In the series of cases reported by von Jaksch was one infant with congenital syphilis and two with rickets. The rather frequent association of these two diseases with anemia of the von Jaksch type led many to conclude that the anemia is nutritional or toxic in origin and secondary in nature. Evans and Happ [3] of Baltimore, who adopt this view, maintain that the von Jaksch symptom complex is not a disease *sui generis* and that it is not entitled to a special name, especially one that suggests leukemia. Eppinger,[4] who also believes that faulty nutrition or infection is the underlying factor, looks on the condition as the reaction of a functionally inadequate hematopoietic system to increased blood destruction occasioned by the underlying disease.

In view of the lability of the hematopoietic system of the infant, it is probable that under von Jaksch's anemia have been included a variety of conditions and that infantile pseudoleukemic anemia is a term that includes a heterogeneous assortment of states that do not have much in common. Out of this group, however, a condition sharply enough characterized clinically and anatomically to permit its recognition as a definite disease entity may be selected. Pappenheim [5] held von Jaksch's anemia to be a primary anemia with myeloid metaplasia of the spleen and with intramedullary and extramedullary erythroblastosis. The myelocytosis, which leads to the increase of polymorphonuclear leukocytes in the circulating blood, he believed to be a purely secondary reactive phenomenon. Cooley [6] of Detroit does not believe that there is a characteristic anemia of infants that is regularly associated with syphilis or rickets. He holds that there is an anemia of infants that is not apparently due to infection or to nutritional disturbance. This anemia has points of resemblance to hemolytic icterus, sickle cell anemia and pernicious anemia but it also has points of dissimilarity that permit its differentiation from these states. It is hemolytic in character, the cause of the increased hemolysis being as yet unknown. This infantile hemolytic anemia was more precisely characterized by Cooley, Witwer and Lee [7] in 1927, when they described changes in the bones that may be detected roentgenologically and that differ from the rachitic osseous changes sometimes present in infants with this form of anemia. The diameter of the shaft of the long bones is increased, the cortex is

1. Von Jaksch, R.: Ueber Leukämie und Leukocytose im Kindesalter, Wien. klin. Wchnschr. **2**: 435, 456, 1889.
2. Von Leube, W. O.: Specielle Diagnose der inneren Krankheiten, ed. 6, Leipzig, F. C. W. Vogel, 1901, vol. 2.
3. Evans, F. A., and Happ, W. M.: Secondary Anemia of Infants: A Study of So-Called Infantile Splenic Anemia or Anemia Infantum Pseudoleukemica, Bull. Johns Hopkins Hosp. **33**: 1 (Jan.) 1922.
4. Eppinger, H.: Die hepato-lienalen Erkrankungen, Berlin, J. Springer, 1920.
5. Pappenheim, A.: Bemerkungen zur Frage und zum Begriff der Leukanämie und Anaemia splenica, Folia haemat. **14**: 320, 1912.
6. Cooley, T. B.: Von Jaksch's Anemia, Am. J. Dis. Child. **33**: 786 (May) 1927.
7. Cooley, T. B.; Witwer, E. R., and Lee, Pearl: Anemia in Children with Splenomegaly and Peculiar Changes in the Bones, Am. J. Dis. Child. **34**: 347 (Sept.) 1927.

thinned, and the marrow has a spongy, mottled appearance. The bones of the skull may be greatly thickened, the greater thickness being due to an increase of the diploe, which is associated with marked thinning of the outer and inner tables. The involvement of the bones about the orbit may give to the child a mongoloid appearance, a feature that is heightened by the icteric tinge of the skin sometimes present. The changes in the bones detectable roentgenologically are the result of erythroblastic hyperplasia of the marrow. Whipple, Reeves and Cobb [8] of New York have confirmed these characteristic bone changes. Wollstein and Kreidel [9] of New York, who have presented a study of nine cases of this form of hemolytic anemia of childhood, have also noted the rarefaction of the shafts of the long bones described by Cooley. In five of the children of their series, splenectomy was done. Four of the five children subjected to this operation had died. The time of survival after splenectomy ranged from four months to more than four and a half years. The operative procedure was followed in every case by a progressive increase in the number of nucleated erythrocytes in the circulating blood and by increasing immaturity of the red cells in those children who survived the operation longest.

Although there has been much confusion in the classification of the anemias of childhood since the description by von Jaksch of infantile pseudoleukemic anemia, it now appears possible to separate out of the heterogeneous group of such anemias associated with a leukocytic, lymphocytic or myelocytic reaction a type of anemia that has definite characteristics. It begins early in childhood, is often familial in its occurrence, is progressive in its course, and is usually fatal in its termination. It bears no detectable relation to infection or to nutritional disturbance. The erythrocytes and hemoglobin are usually proportionately reduced, the color index remaining approximately 1. In the degree of anisocytosis and poikilocytosis and in the number of nucleated erythrocytes, it is like the pernicious anemia of adults. The leukocytes are as a rule increased in number, the increase being chiefly in the polymorphonuclear elements, although the lymphocytes and monocytes also may be increased, and myelocytes and myeloblasts may appear in the peripheral blood. The spleen is enlarged to from four to ten times its normal size, the liver is moderately enlarged, and the lymph nodes are somewhat increased in size. Myeloid transformation of the spleen is noted histologically. Most striking are the rarefaction of the long bones and the thickening of the flat bones of the skull, due to erythroblastic hyperplasia of the marrow. The anemia is hemolytic in origin. Mild jaundice may be present, the icterus index of the blood may be slightly increased although usually within normal limits, the blood serum may give a delayed direct van den Bergh reaction, and the urobilinogen content of the feces may be increased. In its familial occurrence, in the degree of anemia, and in the associated splenomegaly, this form of anemia bears a resemblance to familial hemolytic icterus. It differs from the latter in the lesser grade of jaundice, in the normal fragility of the erythrocytes, and in its continued progressive course after splenectomy. How many of the cases originally described by von Jaksch belonged to this now well characterized group, it is difficult to say. His name should probably still be associated with the disease. Because of the confusion that it has caused, the term anemia infantum pseudoleukemica should be discarded. If von Jaksch's anemia is an objectionable name for the disease, the term used by Wollstein and Kreidel, familial hemolytic anemia of childhood, may be adopted.

8. Whipple, A. O.; Reeves, R. J., and Cobb, C. C.: Atypical Hemolytic Anemia with Splenomegaly in Children, Ann. Surg. **88**: 380 (Sept.) 1928.
9. Wollstein, Martha; and Kreidel, Katherine, V.: Familial Hemolytic Anemia of Childhood—von Jaksch, Am. J. Dis. Child. **39**: 115 (Jan.) 1930.

WHEN DIAGNOSIS IS OBSCURE

Among the contributions of science to human welfare in recent years have been the demonstrations of the exact causes of a considerable number of diseases along with the marshaling of evidence regarding the presumptive etiology of others that have long remained obscure. In the latter category, for example, the growing knowledge of the filter-passing viruses is included. There is a unique satisfaction in breaking the bonds of ignorance which render a physician powerless in the face of disease. This is evidently what Harris and Butt [1] had in mind in an elucidation of what investigation of the causes of diseases has meant for mankind:

> Nothing is more exasperating than to be compelled to witness a great tragedy which we know could be prevented if we could only do the right thing. Some one described a horrible nightmare in which he seemed to be tied to a telegraph post near a railroad track and saw his child playing on the track while a train approached. As he stood there powerless to help, the child was mangled by the engine. If he could only have broken the cords that bound him he could have snatched the innocent child out of danger.

Experiment in medicine has certain limitations. As Lee [2] has pointed out, we can voluntarily control nature's phenomena in a great variety of ways; we can control their beginning, their progress and their ending, and in this way we can make them more accessible to observation. This is the essence of experimentation. It is the voluntary control or modification of natural phenomena. It is an artificial aid to simple observation. By means of it we can penetrate more rapidly and more deeply into nature's secrets than it would ever be possible for us to go unaided. There are, however, many instances in the study of human disease in which direct experiment of the sort described has manifest limitations. In such cases the indications are obscure, the symptoms may be confusing, and direct inspection of involved organs or "voluntary control"

1. Harris, F. S., and Butt, N. I.: Scientific Research and Human Welfare, New York, Macmillan Company, 1924, p. 11.
2. Lee, F. W.: Scientific Features of Modern Medicine, New York, Columbia University Press, 1911, p. 155.

of their functions may obviously be excluded. No one could have "guessed" the cause of the bronzed skin of Addison's disease during life through experiments on human subjects. Postmortem examination furnished the clues for the further productive study of the disorder in its relation to the suprarenal structures. The history of this achievement affords an impressive example of the inestimable value of necropsy records and the considerations that they may initiate.

A few years ago a distinguished clinician startled the medical profession with his comments on the inadequacy of current diagnoses of diseases that proved fatal. The elaborate statistics of a prominent hospital were presented to show the surprising discrepancies between the antemortem diagnosis and the postmortem observations. Such unwelcome frankness yields beneficial results in more than one way. It serves to impress the "busy practitioner" with the limitations of present-day knowledge and the enormous need of never ceasing investigation of the manifestations of ill health. It promotes the utmost care in the search for causes and encourages carefulness in the formulation of medical opinions. It advances the cause of research and helps to develop a more sympathetic attitude toward it.

A recent summary [3] regarding fevers of unknown origin in patients at the Peter Bent Brigham Hospital in Boston represents a type of confession of medical limitations that is certain to promote a better understanding of the current obscurities of practice. The diagnosis of "fever of unknown origin" was ventured if, after painstaking clinical and bacteriologic investigation, no good evidence was obtained by which a diagnosis could be established that would account for the fever. Many of the patients in this category became well. Of forty-four patients with fever of unknown origin of less than ten days' duration, follow-up notes showed that forty-two had not developed any associated pathologic condition. The most interesting feature of the study, which involved a "follow-up" of the patients as well as possible, was that, of fifty-seven patients who had prolonged fevers of unknown origin lasting ten days or more, a positive diagnosis was established in twenty-one. The majority of these had tuberculosis, rheumatic infection or malignant disease. The investigators pointed out that the patient with obscure fever may be one of the most difficult problems in diagnosis, and often positive evidence of the cause of the fever can be obtained only by a prolonged and careful period of observation. Until a correct diagnosis is made or until the fever subsides spontaneously, it is well to take a conservative attitude toward the prognosis and treatment of these cases. This valuable study deserves to be emulated by other workers earnest in their warfare against disease, who are

strong in will
To strive, to seek, to find, and not to yield.

3. Alt, H. L., and Barker, M. H.: Fever of Unknown Origin, J. A. M. A. **94**: 1457 (May 10) 1930.

VITAMIN C IN MILK

In current feeding practice as applied to children and others who receive a large part of their nutriment from milk, it has become customary to furnish antiscorbutic agents in the form of supplementary foods such as orange or tomato juice. This procedure is based on a growing appreciation of the importance of vitamin C, the antiscorbutic factor, in the preservation of health and the promotion of normal development; likewise on the demonstration that the antiscorbutic potency of milk is variable with the ration of the cow and with the treatment that milk has received prior to its use. The destructive action of heat in particular has properly received emphasis in these days of pasteurization of milk supplies or conservation of milk through partial desiccation with the aid of heat. Therefore a recent writer has summarized the situation by the statement that the fundamental factors operating to affect the vitamin C content of milk are the feeding practices of dairymen and the temperature and exposure of the milk to oxygenation after it is produced; namely, storage practices, cooling, straining, and pasteurization and repasteurization. Under the caption of oxidation per se is included the effect of the container coming in contact with the milk, because any effect this might have would probably be catalytic oxidation. Copper has been shown by A. F. Hess to be particularly conducive to destroying vitamin C during the pasteurization process.

There are growing indications that, despite the application of heat, the antiscorbutic potency of milk may be far from negligible, as is so commonly assumed. This deserves notice on the part of those who fear to use boiled milk that experience has shown to be well adapted to digestion and often a guaranty of safety against infection. The most recent evidence comes from the Mellon Institute of Industrial Research, where Schwartze, Murphy and Hann [1] have conducted elaborate tests with previously unheated milks. They report that the amount of antiscorbutic vitamin destroyed by lightly boiling three quarts of milk for five minutes in a glass beaker or in an aluminum stew pan was, within the limits of accuracy of experiments of this kind, found to be approximately 20 per cent. The quality of the winter milk used and obtained from ensilage-fed cows was better than any heretofore reported on and almost, if not actually, as potent as the best summer milk obtained from cows on pasturage. This points to a forgotten but possibly high potential value of milk as a carrier of vitamin C.

It would be a misfortune if the well founded custom of supplying antiscorbutics to children subsisting on market milk were retarded in any degree by these studies. They are quoted here to indicate that, owing to the increasing amounts of well prepared milk products that are now being fed, the quantity of vitamin C

1. Schwartze, E. W.; Murphy, F. J., and Hann, R. M.: Studies on the Destruction of Vitamin C in the Boiling of Milk, J. Nutrition **2**: 325 (March) 1930.

that escapes destruction and is made available to the consumer may be larger than is generally assumed. This is a real advantage. Although the vitamin requirements of the baby cannot yet be expressed in accurate terms, it is known from actual experiment, in the words of Rose,[2] that "babies grow better, show less tendency to be anemic, and develop better teeth, if vitamin C is made a regular part of their diet from the first."

RELIEF OF ATELECTASIS BY CARBON DIOXIDE INHALATIONS

The mortality of typhoid and of diphtheria is being reduced toward the vanishing point, but the mortality per hundred thousand of population for pneumonia remains about as it was before the advent of modern investigation. The causative factors have been studied and endeavors have been made to use combative methods common to infectious diseases. Recent studies prove that the avenue of approach may have been wrong.

The observation has been made in operative cases that pneumonia occurs with occlusion and collapse of the lung, especially noticeable in abdominal cases, in which breathing is impeded by pain. This collapse, atelectasis or apneumatosis (Coryllos), precedes postoperative pneumonia and gives it the characteristics of occlusion and undrained infection. Occlusion prevents such natural protective devices in the lungs as the reflex cough, aimed at the removal of foreign bodies, and the movement of respiration which is properly accompanied by peristaltic contractions and relaxation of the air tubes. The latter action is further aided by the mucosal cilia moving from the depths of the lungs outward. When occlusion occurs the air is absorbed, and the alveoli deflate and collapse and fill with secretions. This, then, is an excellent field for the development of micro-organisms.

A new concept of treatment of pneumonia based on this understanding of the condition present is to keep the air passages mechanically open and drained. Henderson and Haggard have observed that deep breathing, induced by the inhalation of carbon dioxide, diluted in every case with from 5 to 7 per cent of oxygen or air, dilates the lungs and thus prevents or relieves atelectasis. They suggest that carbon dioxide inhalations are indicated in the following conditions in which atelectasis and pneumonia are associated:

1. The new-born. Before birth the lungs are normally atelectatic. The first cry only partly distends the lungs, so that continuance of the atelectasis predisposes to pneumonia. To overcome this, the ancient custom was to make a child cry fifteen minutes or more twice a day. The more recent physiologic teaching is to utilize inhalations of 5 per cent or, better, 7 per cent carbon dioxide with oxygen.

2. Postoperative pneumonia can be almost entirely eliminated by the routine inhalation of carbon dioxide after the termination of the anesthetic and operation. The utility of carbon dioxide used without pure oxygen is proved in general surgical practice, in which it is mixed with ordinary atmospheric air. This procedure, advised by Henderson, Haggard and Coburn to induce a rapid elimination of the anesthetic, is now seen to prevent postoperative atelectasis of pneumonia.

3. Carbon monoxide asphyxia is relieved by the early inhalation of carbon dioxide, which also causes a notable decrease in postasphyxial pneumonia. Where carbon dioxide was not employed with gas victims, an excess of fluid was noted in the respiratory tract, which proved the evidence of lung injury, and, in many cases, some degree of bronchopneumonia was present.

4. Lobar pneumonia is a pneumococcic atelectasis and was so proved when atelectasis was mechanically produced with inflated rubber bags blocking the bronchial airways of dogs narcotized by iso-amyl-ethyl-barbituric acid to prevent coughing. The degree of atelectasis was measured by the displacement of the heart and the mediastinum toward the affected side, as shown roentgenographically. Then a fatal unilateral pneumonia was experimentally induced by placing a virulent culture of pneumococcus in the collapsed lung. Simple pneumococcic atelectasis can be relieved in a patient by aspirating the bronchi through the bronchoscope and then by administering carbon dioxide, and the heart will return to its normal position.

There seems to be little evidence of any nervous influence in the causation of atelectasis. Shallow breathing and accumulation of mucus is the critical morbific factor in producing atelectasis, and the condition is characteristic of an undrained infection. By relieving atelectasis, the early inhalation of carbon dioxide seems to be effective in the treatment of pneumonia.[1]

2. Rose, Mary Swartz: Feeding the Family, New York, Macmillan Company, 1929, p. 139.

1. Henderson, Yandell; Haggard, H. W.; Caryllos, P. N., and Birnbaum, G. L.: The Treatment of Pneumonia by Inhalation of Carbon Dioxide, Arch. Int. Med. 45:72 (Jan.) 1930.

Current Comment

CONTROL OF EYE DISORDERS

The inadequate adaptation of health service to the care of disorders of the eye is emphasized in a recent report by the Welfare Council of New York City.[2] The investigators urge conservation of vision as a public health responsibility and have prepared a standard that will give complete service for the eye with all the facilities for examination and treatment of other parts of the body that are offered by general hospitals. Some conception of the work done by available services is shown in the fact that 157,000 persons are treated annually in seventy-nine eye clinics of New York City. Eleven of these clinics have been established by the department of health in the public schools and serve about 20,000 children. Most of the ophthalmic conditions of importance to the public health are served in the remaining sixty-eight clinics outside the department, which serve 138,000 patients; 60 per cent are cared for in the seven clinics attached to special eye hospitals. Nevertheless, the service seems to be unorganized and unsystematic and thereby does not provide all that it might. To remedy the service, the Welfare Council has recommended two activities that greatly aid in the conservation of vision: tests of vision

2. Davis, M. M., and Jarrett, Mary C.: Control of Eye Disorders, Welfare Council of New York City, 1929.

of the preschool children and sight-saving classes for children of school age. The tests of vision of preschool children are handled by the National Society for the Prevention of Blindness in special demonstration clinics. They also train teachers and their literature is in general use by the schools and social agencies. There are seventy-four sight saving classes established with the total enrolment of 1,300. These are maintained for children with seriously defective vision. However, these patients do not receive attention to diseases of the eye until the defects become apparent in routine school examination by medical inspectors or until they may be noted by teachers. Routine vision tests are not given until the third grade. With this incomplete examination of the vision yearly there were found 32,023 defects in 369,185 children. The committee considering the needs of eye clinics in the public schools of New York found that 200,000 out of 1,204,000 children needed refraction of visual defects. The greatest cause of actual blindness in the United States (15 per cent) is industrial accidents. This percentage has been markedly reduced, however, where firms have provided protective devices and close supervision and education of employees together with efficient first aid service. The Welfare Council report shows that a great deal of efficient work is done by individual agencies, but not all patients are reached who should be reached. With the significant rôle of voluntary agencies in the public health field, official agencies should be able to work out an efficient cooperative plan for the conservation of sight and prevention of blindness.

Association News

THE DETROIT SESSION

Alumni Banquet

During the annual session of the American Medical Association, the alumni of the Detroit College of Medicine and Surgery will hold a reunion banquet at the Statler Hotel, Detroit, Wednesday, June 25, at 7 p. m.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 o'clock, daylight saving time, Monday, Thursday and Saturday; at 10:15 on Tuesday, and at 9:45 on Wednesday and Friday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of June 23-28 is as follows:

June 23. How Do You Care for Your Nails?
June 24. The Border Line.
June 25. Health on Display.
June 26. Sanitation in the Kitchen.
June 27. Great Paintings of Home Life.
June 28. Common Sense in Mouth Hygiene.

Five Minute Talks may be heard over the Columbia Broadcasting System daily from 1 to 1:05, daylight saving time.

The program for the week is as follows:

June 23. Impetigo.
June 24. Do You Know Your Drinking Water?
June 25. Are You Growing Deaf?
June 26. Laughter and Health.
June 27. Poisonous Hair Dyes.
June 28. Childhood's Enemy—The Tease.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Roy H. Wilson, Ogden, Utah, has been appointed health officer of Madera County to succeed Dr. Harry B. Neagle, resigned.——Dr. Harry E. Anderson has been appointed health officer of Culver City, succeeding Dr. Frederick A. Rhodes.——Dr. William B. Wells, health officer of Riverside City and Riverside County, has been appointed secretary of the Health Officers' Section of the League of California Municipalities, succeeding the late Dr. Fred William Browning, Hayward.——Ferdinand Callsen, D.D.S., has been appointed city health officer of Daly City, succeeding Dr. Augustus H. Rankin.

Society News.—The San Diego County Medical Society was addressed, June 10, by Dr. Joseph M. King, Los Angeles, on hypertension.——The Los Angeles Surgical Society was addressed, June 13, by Drs. Steele F. Stewart on "Surgery of the Sympathetic Nervous System" with motion pictures; Homer W. Spiers, "Fracture Dislocations, Lower Cervical Spine," and Hugh Toland Jones, on "Plastic Operations on Feet."——The Alameda County Medical Association was addressed at Oakland, June 16, by Drs. Roy F. Nelson on "Nasal Physiology"; Charles A. Dukes, "Double Acute Conditions"; William Whitfield Crane, Jr., "Intramural Inflammations of the Sigmoid Simulating Malignancy"; Sumner Everingham, "Fascial Repair of Hernia," and Emil Beck, Berkeley, "Differentiation of Cancer Cells from Normal Cells."

COLORADO

Society News.—Dr. Frederick E. Becker, Denver, addressed the Boulder County Medical Society, May 8, at Boulder on "Rocky Mountain Spotted Fever, with Special Reference to Those Cases Without Rash."——The Medical Society of the City and County of Denver was addressed, May 6, by Drs. Harry L. Baum on "Acute Adenitis in Children Treated by Tonsillectomy"; Edwin G. Faber, "Considerations of General Anesthesia"; Frost C. Buchtel, "Spinal Anesthesia," and John E. Struthers, "Amytal Sodium Anesthesia"; the society was addressed, May 20, by Drs. Josiah N. Hall on "Obesity"; Oscar M. Gilbert, Boulder, "Some Problems in Connection with Pneumothorax in Pneumoperitoneum Therapy," and Clough T. Burnett, "Coronary Thrombosis."——Drs. Charles H. Platz, Peter J. McHugh and Lowell Little, Fort Collins, addressed the Larimer County Medical Society, May 7, on "Mathematics in Diabetes," "Diagnosis, Complications and Treatment," and "Surgery in Diabetes," respectively.——The Northeast Colorado Medical Society was addressed at Sterling, May 7, by Drs. Chauncey E. Tennant and William B. Yegge, Denver, on "Postoperative Pneumonia versus Atelectasis," giving, respectively, the surgeon's and the internist's view.——A symposium on empyema in children was presented before the San Luis Valley Medical Society in Alamosa, May 24, by Drs. George B. Packard, Jr., Frank B. Stephenson and George S. Johnson of Denver.

CONNECTICUT

State Medical Election.—Dr. Frederick G. Graves, Waterbury, was elected president of the Connecticut State Medical Society at its annual meeting, May 22, and Dr. Charles W. Comfort, Jr., reelected secretary. The next annual session will be at Bridgeport, May 20-21, 1931.

Appointments and Promotions at Yale.—The following persons have been appointed or promoted to the positions indicated at Yale University:

David Ingersoll Hitchcock, Ph.D., associate professor of physiology.
Merrill Kirk Lindsay, M.D., associate clinical professor of orthopedics.
Clements Collard Fry, M.D., assistant professor of psychiatry.
Denis Stanislaus O'Connor, M.D., assistant professor of orthopedics.
George Valley, Ph.D., assistant professor of bacteriology.
Vincent D. Vermooten, M.D., assistant professor of urology.
Harry Martin Zimmerman, M.D., assistant professor of pathology.
Marian Cabot Putnam, M.D., assistant professor of psychiatry and mental hygiene.
Douglas Merrill Gay, M.D., instructor in pathology.
Reuben Harold Lockhart, M.D., instructor in radiology.
Caspar Greene Burn, C.P.H., instructor in pathology.
Harold Harmon Walker, C.P.H., instructor in public health.
David Mitchell Kydd, M.D., instructor in medicine.
Walter Orville Blanchard, M.D., instructor in medicine.

Carl Edward Johnson, M.D., instructor in surgery.
William John German, Jr., M.D., instructor in surgery.
Dominic John Dell'Aquila, M.D., instructor in obstetrics and gynecology.
Charles S. Culotta, M.D., instructor in pediatrics.
Val Beyer Satterfield, M.D., instructor in psychiatry and mental hygiene.
Carl Philip Wagner, M.D., instructor in psychiatry and mental hygiene.
Julius Lane Wilson, M.D., clinical instructor of medicine.
William Rives Wilson, clinical instructor of pediatrics.
Elizabeth Ross Harrison, M.D., clinical instructor in pediatrics.
Harry E. Klebanoff, M.D., clinical instructor of medicine.
Bernhard A. Rogowski, M.D., clinical instructor of medicine.
Herman C. Little, M.D., clinical instructor of ophthalmology.
Dr. Catherine Strunk Amatruda and Alice Virginia Keliher have been appointed, respectively, research pediatrician and research assistant in the Clinic of Child Development of the Yale Psycho-Clinic.

ILLINOIS

Chicago

Personal. — Dr. Charles F. Read will become managing director of the Elgin State Hospital in July, succeeding Dr. Ralph T. Hinton, who has been transferred to the state's new mental hospital at Manteno. The Manteno hospital will open with about 1,600 patients shortly after July 1. When completed, it will house between 6,000 and 7,000 patients. The state has already spent $3,000,000, and another $2,000,000 probably will be required to complete it.——Dr. Stephen Poljak of the University of California Medical School has been appointed assistant professor of neurology in the department of medicine at the University of Chicago, effective July 1.

Dr. Billings Endows Fellowships at Rush College.—At the annual dinner of the Faculty and Alumni of Rush Medical College of the University of Chicago, Congress Hotel, June 10, it was announced that Dr. Frank Billings, for many years professor of medicine and dean of the faculty, has given $100,000 to establish four fellowships at Rush Medical College. They are to be named in honor of Drs. Edwin R. Le Count, professor of pathology, Ernest E. Irons, dean and professor of medicine, and Wilber E. Post, and Rollin T. Woodyatt, clinical professors of medicine. About 400 persons attended the banquet, the Gold Room being filled to overflowing. The toastmaster was Dr. Arthur T. Holbrook of Milwaukee. The speakers were President Hutchins of the University of Chicago, Drs. Billings, Arthur Dean Bevan, Anton J. Carlson, Edward S. Murphy, president of the alumni association, John Ritter, whose class celebrated its fiftieth anniversary, Donald P. Abbott, representing the class of 1910, Paul H. Herron, representing the class of 1930, and Mr. William E. Sharp, representing the board of trustees of the Presbyterian Hospital. At the business meeting preceding the banquet, Dr. Carl B. Davis of Chicago was elected president of the alumni association for the ensuing year.

IOWA

Society News.—The Twin Lakes District Medical Society conducted a dry diagnostic clinic, June 12; among the speakers were Drs. William J. Mayo, Frank C. Mann, Leda J. Stacy, Thomas B. Magath, all of Rochester, Minn.; Willard Bartlett, St. Louis; Hiram Winnett Orr, Lincoln, Neb., and Charles Spencer Williamson, Chicago. —— Drs. John A. Wolfer and William H. Holmes, Chicago, addressed the fifty-seventh annual meeting of the Des Moines Valley Medical Association, recently, on "Surgical Treatment of Carcinoma of the Breast" and "Neurological Lesions Frequently Encountered by Internists," respectively.

LOUISIANA

Society News.—The Orleans Parish Medical Society was addressed, May 26, by Drs. Marion Earle Brown on "Optic Atrophy"; Robert Clyde Lynch, "Cancer of the Larynx: Moving Picture Demonstration of Laryngectomy; Presentation of a Patient with Artificial Larynx"; Narcisse F. Thiberge, "Control of Allergic Cases," and William A. Lurie, "Neuralgia, Tic-Douloureux, Its Treatment by Injection of Quinine Urea." —"Retro-Displacements" was the subject of Dr. Hiram W. Kostmayer, New Orleans, before the St. Tammany Parish Medical Society at Mandeville, May 9, and "Hypertension" that of Dr. Stanford Chaille Jamison, New Orleans.

Bills Introduced.—S. 79 proposes to require all asylums, hospitals and schools in towns having central fire alarm stations and municipal fire alarm systems to be equipped with fire alarm boxes. S. 85 proposes to provide for the sexual sterilization of insane, idiotic, imbecile, feebleminded and epileptic inmates of state institutions. S. 98 proposes to provide for holding special elections in the several parishes of the state, to levy a special tax to build or maintain tuberculosis hospitals. S. 138 proposes to provide that whenever in a criminal cause a plea of insanity is entered, the presiding judge shall appoint three physicians to constitute a commission of lunacy to inquire into the sanity of the accused. S. 146 proposes to establish a charitable hospital in Monroe, to be known as the Northeastern Louisiana Charity Hospital. H. 292 proposes to delegate to the Louisiana State Society for the Prevention of Cruelty to Animals the power to supervise the registration, licensing and inoculation of dogs in the state. This bill, further, seeks to require the annual vaccination of dogs against rabies. H. 433 proposes to appropriate $207,000 for the purpose of continuing and further developing full time health units in the parishes of the state, in conjunction with the Rockefeller Foundation and the federal government through the United States Public Health Service. H. 481 proposes to levy an annual occupational tax of $5 on physicians, osteopaths, dentists and oculists. H. 545 proposes to regulate the sale and distribution of dangerous caustic or corrosive substances and to provide for labeling them "poison." H. 624 proposes to define methyl alcohol or methanol as wood alcohol, whether natural or synthetic, and to require labeling as "poison" in red ink below the words "wood alcohol." H. 638 proposes to accord veterinarians a lien on all live stock owned by the person employing said veterinarians.

MARYLAND

Assignments at Johns Hopkins.—The following changes on the faculty have been announced:

Marion Hines, Ph.D., from associate in anatomy to associate professor of anatomy.
Dr. L. Emmett Holt, Jr., from associate in pediatrics to associate professor of pediatrics.
Dr. John R. Oliver, associate in the history of medicine.
Dr. Fielding H. Garrison, now librarian of the William H. Welch Medical Library, to resident lecturer in the history of medicine.

Case of Typhus Reported on Eastern Shore.—Typhus fever has been discovered, diagnosed and quarantined on a farm near Templeville, Queen Anne's County. The case was diagnosed by Dr. Challice H. Metcalfe, Sudlersville, and Dr. Caleb W. G. Rohrer of the state health department; Dr. Ralph G. Beachley, Chestertown, deputy state health officer, made supplemental investigations which corroborated the diagnosis. This is believed to be the first case of typhus fever on the Eastern Shore of Maryland. Unhygienic surroundings cannot be considered potent factors in the epidemiology of this case.

Funds for Johns Hopkins.—The Rockefeller Foundation recently contributed $887,500 to Johns Hopkins University to be given over a period of ten years for the increased support of the biologic sciences, and $100,000 for "research in the humanities." The fund for the biologic sciences is given in this form: $387,500 over a period of ten years and $500,000 at the end of this period. The work in biology is being done by the following men: Raymond Pearl, Ph.D., director of the Institute of Biology, which has been financed over a five year period ending this year. Dr. Pearl will become professor of biology in the School of Hygiene and Public Health at the beginning of the next scholastic year; Herbert Spencer Jennings, Henry Walters professor of zoology and director of the zoological laboratory; Duncan Starr Johnson, professor of botany and director of the botanic laboratory; Burton Edward Livingston, professor of plant physiology and director of the laboratory of plant physiology. The fund for research in the biologic sciences makes possible the continuance of work which Dr. Pearl was doing in the institute of biology and which he will now do in the school of hygiene, also the continuance of certain work being done in connection with the Carnegie Institution of Washington.

MASSACHUSETTS

Society News.—Prof. Erik Gunnar Nyström of the University of Upsala, Sweden, addressed the Harvard Medical Society, Boston, May 20, on "Operations for Pulmonary Embolism." —— The South End Medical Club was addressed at Boston, June 10, by Dr. Hilbert F. Day, on "Diagnosis of Acute Abdominal Conditions."——Dr. Francis P. McCarthy addressed the Massachusetts Italian Medical Society, Boston, June 9, on "Diagnosis and Treatment of Oral Lesions," illustrated by lantern slides.——Philip Drinker gave a "Demonstration of a New Apparatus for Artificial Respiration, from the Harvard School of Public Health" at the annual meeting of the Harvard Medical School Alumni Association, June 16.

MISSOURI

State Medical Election.—At the annual meeting of the Missouri State Medical Association, May 14, Dr. Wenzel C. Gayler, St. Louis, was installed as president, and Dr. John F. Harrison, Mexico, made president-elect; Dr. Edward J. Goodwin, St. Louis, was reelected secretary. The next annual session will be held at Joplin.

Drs. Neilson and Schoemaker Honored.—Drs. Charles Hugh Neilson and Daniel Martin Schoemaker, both on the faculty of St. Louis University School of Medicine, were honored at a dinner given by the administrative board of the university, June 4. This was the anniversary of twenty-five years of uninterrupted service of both men in the medical school. Dr. Neilson is the associate dean of the school of medicine and professor of internal medicine. Dr. Schoemaker is professor of anatomy.

Appointments at Washington University.—The following appointments in the department of ophthalmology of Washington University School of Medicine have been announced recently:

George H. Bishop, Ph.D., now associate professor of physiology in the school of medicine, professor of applied physiology.
Louis A. Julianelle, Ph.D., of the Rockefeller Institute for Medical Research, associate professor of applied bacteriology and immunology.
James A. Hawkins, Ph.D., of the Rockefeller Institute, associate professor of applied biochemistry.
R. Wendell Harrison of the University of Chicago, instructor in applied bacteriology and immunology.
Garvey Bowers of the University of Kansas, research assistant in applied bacteriology and immunology.
Dr. Harvey J. Howard is head of the department.

MONTANA

Society News.—The Yellowstone Valley Medical Society acted as host to the Midland Empire Medical Conference in Billings, May 5; among the speakers were Drs. Roy V. Morledge on "Diagnosis and Treatment of Common Head Colds Including Complications"; Edward W. Thuerer, "Diagnosis and Management of Goiter"; Charles F. Watkins, "Use and Abuse of Physiotherapy"; John R. E. Sievers, Butte, "Einstein Theory of Relativity"; Edward M. Gans, Harlowton, "Some Economic Aspects of Medical Practice," and Louis W. Allard, "Backache"; Attorney W. J. Jameson, Jr., spoke on "Some Medicolegal Aspects of Medicine."——Dr. Elmer G. Balsam, Billings, was elected president of the state board of health at a meeting, April 3; Dr. William F. Cogswell, Helena, was reelected secretary.

NEW JERSEY

Personal.—Dr. Leopold Goldstein, Camden, was recently appointed instructor in obstetrics at Jefferson Medical College, Philadelphia.——Dr. Theobald Smith, Princeton, recently received the gold headed cane of the American Association of Pathologists and Bacteriologists for distinguished service in pathology and bacteriology.

Health at Trenton.—Telegraphic reports from sixty-four cities with a total population of thirty million to the U. S. Department of Commerce, for the week ended June 7, indicate that the highest mortality rate (24.4) appears for Trenton, and that the mortality rate for the group of cities as a whole, was 13. The mortality rate for Trenton for the corresponding week last year year was 15.4, and for the group of cities, 12.1. The annual rate for sixty-four cities was 13.6 for the twenty-three weeks of 1930, as against a rate of 14.8 for the corresponding weeks of 1929. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

NEW YORK

New York City

Request Blood of Former Infantile Paralysis Patients.—The New York Academy of Medicine issued a call, June 6, to former victims of infantile paralysis to donate blood, from which to obtain serum to be used in the treatment of other cases. A fee will be paid to those whose blood is found suitable in donors who have had the disease within the last twenty-five years. So far this year, nine cases of the disease and two deaths have been reported in New York. Injections of the serum obtained from the blood of former sufferers into new victims have been so encouraging that the academy, cooperating with the department of health, is trying to keep a supply of the serum available for physicians who are called to treat infantile paralysis.

Diphtheria Commission Wins Harmon Award.—In a nation-wide contest, the Diphtheria Prevention Commission of the New York City Department of Health has been awarded the Harmon Foundation's award for the best year's public health educational record in social work submitted by an agency in a city or county of more than 200,000 population. The presentation of the award was made, June 9, at the National Conference of Social Work in Boston. Seventeen states and subdivisions of states entered the contest. During the first twelve months in which the commission functioned, diphtheria deaths in New York decreased 56 per cent. More than 250,000 children under the age of 10 years in New York have been immunized against diphtheria by toxin-antitoxin. In its campaign, the commission, among other things, directed its appeals through the radio, newspaper articles, electric signs, car cards, healthmobiles and the distribution of more than 12,000,000 pieces of literature.

OHIO

University News.—A $500 fellowship in the Graduate School of Arts and Sciences for the year 1930-1931, to be known as "The Susie Friedlander Fellowship in Applied Psychology," has been created by Dr. Alfred Friedlander, professor of medicine, University of Cincinnati College of Medicine, as a third memorial in the University of Cincinnati in honor of his daughter, the late Miss Susie Friedlander. Members of the Friedlander family earlier this week offered the university a gift of $55,000, of which $40,000 was to create a permanent Susie Friedlander research fund in the department of psychiatry in the college of medicine, payable in five annual instalments. The remaining $15,000 would be a minimum sum to endow a permanent Susie Friedlander fellowship in psychiatry in the medical college.

OREGON

Society News.—The thirty-ninth annual meeting of the Southern Oregon Medical Association was addressed, May 13, in Medford, among others, by Drs. Grover C. Bellinger, Salem, on "Development of Tuberculosis with Special Reference to the Child Types"; Wilson Johnston, Portland, "Basic Science Law"; Sterling Bunnell, San Francisco, "Surgery of the Peripheral Nerves"; Richard B. Dillehunt, Portland, "Surgical Treatment of Infantile Paralytic Deformities"; Charles Homer Wheelon, Seattle, "Duodenal Motor Dysfunction"; Albert L. Mathieu, Portland, "Treatment of Salpingitis with Special Emphasis on the Bell-Beuttner Operation," and Frederick D. Stricker, Portland, preventive medicine in Europe and the United States, illustrated.——A symposium on encephalomyelitis was given before the Portland City and County Medical Society, recently, by Drs. C. L. Armstrong, F. James M. Ernest and John N. Perkins.

PENNSYLVANIA

Society News.—The Allegheny Valley branch of the Allegheny County Medical Society and the staff of the Allegheny Valley Hospital were addressed, June 12, at Tarentum by Drs. John A. Kolmer, Philadelphia, on "Anaphylaxis in the Human Being with Special Reference to Serum Disease, Hay-Fever and Asthma"; John A. Lichty, Clifton Springs, on "Treatment of Anemia," and Howard M. Clute, Boston, "Diagnosis and Treatment of Severe Hyperthyroidism."

Philadelphia

Personal.—Dr. Henry Leffmann was elected an honorary member of the Franklin Institute, May 21.——Dr. Abraham Edward Colcher has been appointed roentgenologist in the coroner's office.

University News.—The one hundred and fifth annual commencement exercises of Jefferson Medical College were held, June 6; the present graduating class of 140 members brings the total number of graduates of Jefferson Medical College to 15,333 during the 105 years of its existence. An honorary degree of doctor of public health was conferred on Dr. Andrew A. Cairns, director of public health of Philadelphia, and a degree of doctor of science on Dr. William Darrach, dean and professor of clinical surgery, Columbia University College of Physicians and Surgeons, New York. Fifty-three members of the senior class were given commissions as first lieutenants in the U. S. Army Medical Reserve.

UTAH

Smoke Abatement in Salt Lake City.—The U. S. Bureau of Mines recently reported the results of a nine year smoke abatement campaign in Salt Lake City in which smoke from large industrial and heating plants was reduced 90 per cent. This city is nearly surrounded by mountains, and Utah bituminous coal of high volatile content is the principal fuel. The survey in 1919 and 1920 showed that industrial and large heating plants were responsible for 44.58 per cent of the smoke; residences for 21.83 per cent; railroads for 18.38 per cent; small heating plants, 9.04 per cent, and miscellaneous consumers, 6.17 per cent. The largest plants were producing 35 per cent as much smoke as it was possible for them to produce. Yet by 1930 this had been reduced to 2 per cent. The controllable factors are primarily concerned with draft. A vigorous educational campaign was undertaken and instructions were given

to all classes of fuel consumers. Ordinances were formulated to govern the installation of the new equipment of all kinds. Efforts are now being made to eliminate smoke, and a suggested solution is the coordination of natural gas and coal interests so that by-product coke ovens will supply coke to householders and coke oven gas to the gas companies.

VIRGINIA

Society News.—The Warwick County Medical Society and the Peninsula Dental Association were addressed, May 27, by Drs. Clifton M. Miller, Richmond, on "Maxillary Sinus with Special Reference to Dental Affection."——The Richmond Academy of Medicine was addressed, May 27, by Dr. Walter Freeman, Washington, D. C., on "Pathologic Laughing and Crying," illustrated.

University News.—Dr. Isaac A. Bigger, associate professor of surgery at Vanderbilt University School of Medicine, Nashville, Tenn., has accepted the professorship of surgery at the Medical College of Virginia, Richmond, beginning August 15. George E. Vincent, Ph.D., until recently president of the Rockefeller Foundation, was the speaker at the ninety-second commencement exercises of the medical college; this year there were 196 graduates, 95 in medicine, 23 in dentistry, 36 in pharmacy and 42 in nursing. Dr. Joseph Lyon Miller, Thomas, W. Va., was awarded the honorary degree of doctor of letters by the medical college. The school has received a grant of $120,000, $40,000 from the Julius Rosenwald Fund and $80,000 from the General Education Board, for the construction of a dormitory and educational unit for the school of nursing of the St. Philip Hospital; this is an institution for Negroes, owned by the college.

WASHINGTON

Society News.—Drs. Frank J. Van Kirk, Bellingham, addressed the Whatcom County Medical Society, May 5, on the medical and social aspects of life in Egypt, Turkey and Vienna.——Physicians from Bothell, Kirkland, Redmond, Bellevue and Renton recently formed the Eastside Medical Association; Drs. Elmer E. Lytle, Bothell, was elected president; George H. Davis, Kirkland, vice president, and Kenneth K. Sherwood, Redmond, treasurer.

GENERAL

Fund for Research.—By the will of William J. Matheson, LL.D., formerly president of the National Aniline and Chemical Company, $600,000 is bequeathed for medical research. In 1927, Dr. Matheson is said to have provided funds for an international survey of epidemic encephalitis. In his will, dated Oct. 10, 1929, he bequeaths 4,200 shares of stock of the Corn Products Refining Company (with a present market value in excess of $400,000) to the William J. Matheson Foundation, a corporation for charitable and educational purposes. According to *Science*, the management of the foundation is authorized to apply the income to the encouragement and support of medical research and for any other charitable or educational purpose. One of its first activities, the will states, should be to take over or contribute to the expenses of the survey of epidemic encephalitis and similar research work now carried on by a committee of which Dr. William Darrach, New York, is chairman. The principal of a $200,000 trust fund is to be paid later to the Matheson Foundation.

Brinkley Ordered Off the Air.—The Federal Radio Commission, Washington, D. C., after a hearing and consideration of the case, refused, June 14, to renew the license of Station KFKB, which has been conducted by "Dr." John R. Brinkley, whom the Kansas City *Star* calls "the master charlatan and lost manhood quack of Milford, Kansas." Brinkley's license expired June 20. The reason for complaints filed against this radio station are obvious in view of the following quotation from the Kansas City *Star:* "In all the history of quackery there never was another system so perfectly and smoothly devised to rope in victims as the one Brinkley has developed in Milford. . . . Brinkley's ballyhoo is in his radio lectures each day. In these he describes the ailments of men, the symptoms of lost manhood, and the sure remedy he has in his goat gland operation. He invites correspondence, through the mails; that is the second step in his 'come on' ballyhoo, and here is the high spot of his system. Once a person writes to Brinkley he is doomed from then on to receive a deluge of pamphlets, testimonials and urgings to go to Milford and be examined."

In his radio talk following the action of the Federal Radio Commission to refuse to renew the license, Brinkley is said to have made the preposterous statement that three members of the commission were bribed by the American Medical Association to vote against his station and that they were unduly influenced by President Hoover to vote against it. The doings of Brinkley were noted in THE JOURNAL, April 26, 1930, page 1339, in an attack entitled, "John R. Brinkley, Quack: The Kansas City *Star* Helps Turn on the Light," and again May 3, 1930, page 1426, in an article entitled, "John R. Brinkley, Quack: He Continues to Get Publicity."

Society News.—Dr. D. Harold Walker, Boston, was elected president of the American Otological Society at its recent annual meeting; Dr. Lee W. Dean, St. Louis, vice president, and Dr. Thomas J. Harris, New York, secretary, reelected.——At the annual meeting of the American Laryngological, Rhinological and Otological Society, May 30, Dr. Max A. Goldstein, St. Louis, was elected president, and Dr. Robert L. Loughran, New York, secretary, reelected.——Dr. Henry B. Orton, Newark, was elected president of the American Bronchoscopic Society, May 27, and Dr. Louis H. Clerf, Philadelphia, secretary, reelected.——Dr. David W. MacKenzie, Montreal, Quebec, was installed as president of the American Association of Genito-Urinary Surgeons, May 23; Dr. Herman L. Kretschmer, Chicago, made president-elect, and Dr. Henry L. Sanford, Cleveland, elected secretary. The next annual meeting will be held in Washington, D. C.——The next annual meeting of the Medical Library Association will be held at Montreal, Quebec, June 25-27; the secretary is Sue Biethan, University of Michigan, Ann Arbor.——The fifteenth annual meeting of the American Association of Industrial Physicians and Surgeons will be held at Detroit, June 23-24; Drs. Hiram Winnett Orr, Lincoln, Neb., will speak on "Osteomyelitis"; John Rollin French, Los Angeles, "Industrial Injury Service"; Clarence O. Sappington, Chicago, "Trend of Industrial Health Work"; Melvin S. Henderson, Rochester, Minn., "Ununited Fractures"; Willis C. Campbell, Memphis, Tenn., "Arthroplasty of the Knee"; William A. Evans, Detroit, "Roentgenologic Findings as Evidence in Medicolegal Problems," and John R. Davis, Toledo, "Reduction of Fractures Under Local Anesthesia" Drs. John J. Moorhead, New York, and Clare F. N. Schram, Beloit, Wis., will also deliver addresses.——Dr. Francis R. Packard, Philadelphia, was elected president of the American Laryngological Association at its recent annual meeting, and Dr. George M. Coates, Philadelphia, secretary, reelected.——The next annual session of the National Medical Association will be held at Indianapolis, August 18-22; the secretary is Dr. Walter G. Alexander, Orange, N. J.

Medical Bills in Congress.—S. 174, establishing a branch home of the National Home for Disabled Volunteer Soldiers in one of the Southern states, has passed the Senate and House. S. J. Res. 188, introduced by Senator George, Georgia, proposes to authorize an appropriation of $25,000 to enable the Surgeon General "of the United States" to investigate conditions in the malarial areas in the United States. H. R. 6124, authorizing the reconstruction of the Army and Navy Hospital, at Hot Springs, Ark., has passed the Senate. H. R. 9638, providing for the establishment of a branch home of the National Home for Disabled Volunteer Soldiers in one of the Northwest Pacific states, has passed the House. H. R. 9676, authorizing additional buildings at the U. S. Naval Hospital, Washington, D. C., has passed the House, with amendments. H. R. 12447, extending hospital facilities to certain retired officers and employees of the Lighthouse Service, has been reported to the Senate, without amendment. H. R. 10375, providing for the retirement of disabled nurses of the Army and Navy, has passed the Senate, with an amendment. H. R. 10381, proposing to amend the World War Veterans' Act, has been reported to the Senate, with amendments. As reported, the bill, among other things, (1) provides that consideration shall be given, in the proof of claims, to lay and other evidence not of medical nature; (2) grants compensation and medical treatment for disabilities due to a venereal disease contracted in service; (3) extends from Jan. 1, 1925, to Jan. 1, 1930, the period within which if disabilities result from certain diseases listed in the existing act they shall be presumed of service origin and adds to that list leprosy and any chronic constitutional disease "or analogous disease"; (4) brings within the purview of the act "those persons retired or otherwise not dishonorably separated from the active list of the Army and Navy." H. R. 12845, introduced by Representative Cooper, Ohio, proposes to provide that the United States shall cooperate with the states in promoting the general health of the rural population of the United States, and the welfare and hygiene of mothers and children. H. R. 12922, introduced by Representative Griffin, New York, proposes to provide for medals of honor and awards to government employees for distinguished service in science or for voluntary risk of life and health beyond the ordinary risks of duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 24, 1930.

Smoke and Health

The National Smoke Abatement Society has published a lecture on smoke and health by Dr. J. S. Taylor, assistant health officer of Manchester, who points out that in Manchester today 3 million tons of coal is burned annually, of which three fourths of a million is used for domestic purposes. Eleven hundred factory chimneys and 150,000 houses are almost continuously discharging into the air the products of incomplete combustion of those millions of tons of coal. The result is that 20,000 tons of solid matter falls annually in the city area and tar and acids to the amount of 75,000 and 200,000 gallons, respectively. This is in spite of the fact that during the last thirty years industrial smoke emission in the city has been reduced by 75 per cent. It seems strange that of the three necessities of life—food, air and water—legislation with regard to purity should have been so long delayed for air, although man consumes seven times as much of it by weight as he does of food and water daily. As a result of the 35 pounds of air inhaled daily by the inhabitants of industrial cities, their lungs, instead of being pink like those of the habitants of the country, are black from deposited carbon. The tarry matter and the sulphur acids are more dangerous and produce catarrh of the respiratory tract, bronchitis, emphysema and heart failure. An authority on public health, Dr. W. A. Brend, examined the main factors in infant mortality and found that "neither poverty, bad housing, insufficient feeding, defective sanitation, disease, industrial occupation of women nor malnutrition of mothers can be regarded as adequate to explain the excessive difference between urban and rural mortality." In 1928 the deaths of infants under 1 year per thousand births were 74.4 in urban against 55.5 in rural districts. Brend believes that the noxious influence which causes the difference is "a smoky and dusty atmosphere and that as a cause of infant mortality it transcends all other influences." One twelfth of all deaths in England and Wales are due to respiratory diseases, but in Manchester the rate is twice as great. For all rural England the infant death rate for 1928 due to pneumonia and bronchitis was 8.8; for Manchester it was 23.16. Though fogs have been reduced in Manchester by 70 per cent in the last forty years, their influence is still such that the city receives only 55 per cent of the light received in the surrounding country. On a clear day the amount of sulphur trioxide in the atmosphere varies from 1 to 3 mg. per hundred cubic feet; on a foggy day it rises to from 8 to 30 mg. The influence of deprivation of light in producing anemia, rickets and tuberculosis is now well recognized. Moreover, there is evidence that smoke is a factor in the production of thoracic cancer. Prof. Shaw Dunn and Dr. Duguid showed that its incidence is higher in places where the atmosphere is smoke laden. This is explained by the fact that tars and mineral oils have now been shown to produce cancer.

The Death Penalty

Before the select committee of the house of commons, which is considering the capital punishment bill, former home secretaries, whose duty is to decide on the remission of the capital penalty in certain cases, gave evidence. Sir Herbert Samuel said that if it was necessary to take the lives of murderers in order to prevent them from taking the lives of innocent people, it seemed to him a legitimate and moral thing to do. But he did not hold that a murderer should be put to death simply as a retribution. Capital punishment may be justified if it is necessary as a deterrent and for that reason alone. We might allow it to fall into disuse gradually. If we found that in many countries with conditions like our own where it had been abolished the formidable consequences anticipated did not take place, steps should be taken toward its abolition. If it was found that police were murdered by professional criminals, there would probably be vehement public reaction against abolition. At the present time, of the death sentences that come before the home secretary, reprieves are given in three out of seven. From 1901 to 1929 the death sentence was passed on 738 persons, of whom 327 were reprieved and 411 executed. He would not favor a sentence of imprisonment for life nor the system in vogue in some continental countries of solitary confinement for a number of years, nor periodic flogging. Almost all the murders in England now were of women by men and were the result of sudden brutal passion. Lord Brentford, home secretary of the last government, said that in the best interests of the community capital punishment should be retained. It was the most dreaded penalty and therefore the greatest deterrent. He had to deal with more cases than any other home secretary excepting one for the last fifty years. In the whole of his cases he found only one man who did not do his best to get off. He had not come across a single case of a reprieved murderer committing another murder. He had no doubt that, if the death penalty should be abolished, professional criminals would take to firearms. Elaborate details were kept at the home office of all the murders. He had investigated every case for forty years and in not one was there even a suspicion that a man had been wrongly hanged.

The Evils of Medical Socialism

The excessive and increasing claims for sick benefit which threaten the funds of national health insurance have been described in previous letters. Unfortunately, an attempt is being made in certain quarters to ignore their obvious cause. In a letter to the *Morning Post* a physician speaks plainly on the point. He states that, in a discussion some days ago among a few physicians regarding the insurance act, one stated that a friend practicing in the north of England said that if he attempted to stand up to any of his patients and put him off the panel (which entitles the patient to sick benefit) he might reckon to lose 100 patients from his list in the next ten days. The writer corroborates this, but as he has a small panel it does not matter to him. He reports the case of a domestic servant whom he caught malingering. She stayed away three days from her duties and was dismissed. She went to some friends and sent for the physician. He found her suffering from alcoholism. She demanded a certificate of illness, so that she could draw benefit from the panel. He refused to give it, as the trouble was due to her misdeeds. She immediately changed her panel physician. Though he wrote full particulars on her record card and sent it to the appropriate authorities, not the slightest notice was taken of his letter beyond the usual "Transferred to another doctor." He could quote numerous similar incidents. To be a success as a panel physician, one must be known as an "easy signer."

The Assessing of Mental Fitness

Sir Farquhar Buzzard, professor of medicine in the University of Oxford, has written to the *Times* pointing out that the medical profession is poorly equipped to deal with minor mental disorders and that consequently there is much avoidable suffering and inefficiency. Dr. Major Greenwood, professor of epidemiology and vital statistics in the University of London, corroborates this and refers to the tragedy of a healthy lad who took his own life rather than face conditions which any lad in similar circumstances faces without much difficulty. Professor Greenwood asks, Does anybody draw the obvious conclusion; namely, that our medicopsychologic means of assessment are grotesquely inadequate? In the discussion to which the case gave rise in the press, various "public school men" gave their experiences and supported the fagging system. But to none of them did it occur that to diagnose the mental make-up of a

boy is as hard a task as to assess his physical fitness; that while we teach medical students how to perform the latter, we teach them nothing and under present circumstances can teach them nothing about the former. However, granting the need of such teaching, it might be asked, Can any amount of it enable the conclusion to be drawn that under a certain mental strain a particular boy would commit suicide?

Illicit Drug Traffic

At the meeting of the council of the League of Nations at Geneva, Mr. Henderson, the home secretary, said that the British government was continuously receiving information showing how widespread illicit drug traffic was. That morning he had received a letter stating that a ship had recently left a certain producing country with 2,000 cases containing 250,000 pounds of opium, all for illicit traffic. He hoped that the manufacturing countries would have a preliminary discussion as soon as possible. The British government would be happy to take the initiative in summoning a meeting of representatives of these countries for the end of July.

The Race Between Civilization and the Insect

The Hospital for Tropical Diseases is to be extended and new equipment provided for its laboratory and a modern lecture theater, to be named after Sir Patrick Manson, is to be erected. Speaking at a dinner held in aid of this work, Lord Passfield, secretary for the colonies, mentioned his pessimistic views with regard to the future of candidates for the West African service whom he interviewed at the colonial office fifty years ago. But in the first thirty years of this century the percentage of deaths and invalidings from the coast had fallen by 90 per cent. This referred only to European health. He had no illusions with regard to the general position, for he added that in Africa a race was being run between civilization and what he comprehensively called "the insect."

ITALY

(From Our Regular Correspondent)

Rome, April 30, 1930.

Provisional Registration of Dentists Without a Medical Degree

The chamber of deputies has approved a decree that provides that dentists who are not graduates in medicine but who are admitted to the practice of their profession may be enrolled in temporary lists to be added to the register of *"medici chirurghi"* (surgeons). Dentistry may not be practiced in Italy by any one who is not a graduate physician, but temporary arrangements have been made by which nongraduates who have practiced dentistry for ten years have been authorized to continue in their specialty.

In the discussion that preceded the passage of the present law, Professor Fioretti, member of the chamber of deputies, said that, while he recognized as just that dentists without a medical degree should be enrolled in separate lists in the medical register, he would not consider it desirable that they should be permitted to pass judgment on persons who had been operated on by medical graduates. He suggested, in addition, that the title of *"dentista abilitato,"* or dentist admitted to practice, be applied to the dentists without a medical degree and that the title of *"odontoiatra,"* or dental physician, be reserved for the dentists with a medical degree. The government did not accept the suggestion.

Practice of the Dermosyphilopathic Specialty

The Associazione nazionale dei dermosifilografi italiani met recently at the Policlinico di Roma, under the chairmanship of Prof. Cerolamo Piccardi, to consider the new legal provisions concerning the title of specialist. The discussion that developed brought out that the present regulations militate against the rights of the ex-service physicians who graduated before January, 1924, since many of them were prevented from graduating and from practicing their specialty because of their service in the war, and consequently could not have so many years of practice as the new law requires. The association passed, therefore, a resolution in which it demands that for the ex-service physicians the period of practice required in order that they may have the right to the title of specialist shall run from the beginning of their professional practice and not from an established date. It demands, also, that the programs of the specialization courses shall be of equal rank and value at all the Italian universities. Finally it asks that, for dermosyphilologists, membership since 1924 in the Associazione professionale nazionale be regarded as sufficient evidence of the right of declaring oneself a specialist, since members in that association are admitted only after an appointed committee has subjected their scientific attainments and their experience to a rigorous scrutiny.

The Scientific Laboratories and University Assistants

Prof. Ermanno Fioretti, in an address before the chamber of deputies, has called the attention of the minister of public education to some problems of the Italian universities, which are awaiting solution—namely, the mode of functioning of the scientific laboratories and the working conditions of the university assistants. The speaker emphasized that the university laboratories should receive larger appropriations, as at present they have not adequate resources for the researches that they are called on to conduct in the interest of scientific progress. Recently there was organized in Italy a campaign against experimental studies carried out on animals, and at a meeting in Rome of the Society for the Protection of Animals, which was attended by many Italian and foreign women, a protest against vivisection was launched. But, Professor Ferretti explained, experimental studies are the very basis of the progress of medical science, and certain discoveries (for instance, that of Luciani on the function of the cerebellum) would not have been made without the aid of vivisection. It is necessary, however, that vivisection be well controlled and be carried out solely in authorized institutes. According to the speaker, reducing the number of Italian universities, as has been suggested in some quarters, should not be considered. That is the opinion held also by the head of the government. But there is need of distributing the various faculties in such a manner that there shall be fewer faculties of medicine but provided with greater resources than at present.

The university assistants, Professor Fioretti stated, have not only the duty of assisting in scientific researches and laboratory studies but also the complex task of directing the young students and starting them in their laboratory work. It is necessary, therefore, to consider their living conditions, in order to check the exodus of young men from the scientific institutes and the present scarcity of university assistants. In addition to giving them more pay there is need also of guaranteeing the stability of their career, which is at the mercy of the incumbent in the professorial chair, who may dismiss at his pleasure young men who have had years of experience as assistants. These conditions lower the scientific and didactic performance of the assistants, as is evident also from the results of the state examinations for admittance to the practice of medicine, which, this year, have shown 30 per cent of failures. According to Professor Ferretti, the university career, which is long, should be shortened, so that there will be more chairs available for the young professors.

Practice of the Auxiliary Sanitary Professions

The minister of the interior has called the attention of the prefects of the realm to the need of strict enforcement of the regulations pertaining to the practice of the auxiliary sanitary professions. All persons who practice these professions must be provided with a certificate based on the proper examination.

A single exception is made in favor of hospital nurses, who, when their tenure of duty extends back at least to August, 1927, may continue to practice their profession in the hospitals to which they are attached, though they may not have a certificate. This exception, however, refers solely to hospital service. The nurse who does not have a certificate may not practice her profession outside the hospital. The regulations provide also that the manufacture, testing for and sale of spectacles in general may be carried on solely by persons who possess the title of "optician." In like manner, only authorized orthopedists may supply prosthetic apparatus and trusses. Acts in contravention of these regulations subject the offender to penalties.

The Congress of Hydrology and Climatology

In September, 1930, the twenty-first National Congress of Hydrology, Climatology and Physical Therapy will be held on the island of Rhodes, an Italian dependency. On that occasion, in Cos, Hippocrates' reputed birthplace, special ceremonies will be held in honor of the Father of Medicine. Hence the society of hydrology has chosen for the congress the following topics: (1) The Works of Hippocrates on Hydrotherapy; (2) Hydrology in Relation to the Constitutional Pathology of Hippocrates, with an official paper by Professor Rondoni of the University of Milan, and (3) The Occupational Pathology of Hippocrates, presented by Professor Devoto, director of the Clinica delle malattie del lavoro in Milan. Special communications will likewise be presented by Professor Cattaneo and Professor Ceresole, and others.

Meeting of the General Management of the Public Health Service

At an important meeting of the general management of the Sanità pubblica, held to establish the essential matters to which the health officers, in the crusade against tuberculosis, should give their special attention, Dr. Fornaciari, the general director, gave an address in which he emphasized that all health officers, including those of the provincial antituberculosis societies, should cooperate in order to make the crusade a success. He explained the activities of the health officers and outlined the program that the physicians should follow in accord with the antituberculosis societies and dispensaries and with the Cassa delle assicurazioni sociale.

Professor Giannini, head of the sanitary services of the Cassa, reported on his observations in the province of Verona, which is one of the provinces chosen for the application of the system of cooperation between physicians and antituberculosis societies. In spite of the difficulties of a technical and an economic nature that were encountered, the experiment gave good results, and the system is now in operation.

Dr. Lusignoli, secretary of the Associazione nazionale fra medici condotti, said that the association considers its members the natural outposts of the antituberculosis societies, since it believes that only the health officer can develop truly effective work in the rural centers.

Professor Ilvento, head of the antituberculosis services of the Sanità pubblica, explained the following features for the future development of the antituberculous crusade: All health officers will be included in the antituberculosis societies *(consorzi)*, and will become the peripheral dispensatory units. For the notification of tuberculosis, the *consorzi* will have liberty of choice with regard to the method of declaration. The activities of the physician will be governed by the instructions issued by the general management of the Sanità pubblica. The Cassa per le assicurazioni sociali will extend to the health officers the rights and privileges granted by the antituberculosis societies. Dr. Lusignoli announced that in some provinces of Italy the health officers were endeavoring to apply antituberculosis vaccination with the Maragliano method, but that in some places they were encountering opposition.

Aid for the War Injured

According to a recent decision, the Associazione pro mutilati ed invalidi is authorized to impose on its members who receive war pensions the payment of a small monthly contribution to be used by the association's aid centers. The contribution may not exceed two lire (ten cents) a month for each member, but even then the association will dispose of a fund amounting to about 5,000,000 lire ($262,500) annually.

Aid for Expectant Mothers

The municipal government of Rome, much disturbed by the number of infanticides and premature deaths, has required midwives to keep under observation pregnant women who are entitled to gratuitous aid, and to notify the municipal consultation center when anomalies of presentation are discovered. Similar regulations have been adopted in other communes of Italy. Some physicians advocate making the notification of pregnancy compulsory. This subject will be discussed at the next Congress of Eugenics in Rome.

Research in Entomology

The Accademia dei lincei has recently taken note of the research of Prof. G. Del Guercio, of the Stazione entomologica in Florence, who has discovered a new order of vegetable micro-organisms (entomococcini, or polyhedral microbes), which are regulators of the equilibrium between destructive insects and nutritive plants. By developing cultures of these micro-organisms, infections may be produced that destroy harmful insects. It is thought that the discovery of Professor Del Guercio will aid in the antimalaria crusade, for the spread of polyhedral micro-organisms will serve to kill the larvae of anopheles.

International Congress of the History of Medicine

At the seventh International Congress of the History of Medicine, to be held in Rome in September, 1930, the following topics will be discussed: (1) How Europe Defended Itself Against Leprosy in the Middle Ages, with an official paper by Professor Jeanselme of Paris; (2) The Necessity of Making Obligatory Certain Instruction in the History of Medicine, with the chief paper by Prof. L. Szumowski of Cracow, and (3) Relations Between Italy and Other Nations with Regard to Medicine and the Natural Sciences, with the principal communication by Professor Castiglioni, of the University of Padua. During the congress there will be organized a museum of the history of medicine, at the Ospedale di Santo Spirito in Rome. An excursion will be made to Cos, where the vault of Hippocrates has recently been discovered.

Lectures on the Medical Aspects of Sport Activities

The course of lectures on the medical aspects of participation in sport activities, for which 260 graduates have enrolled, was recently opened at Naples, in the Istituto di medicina del lavoro. The introductory lecture was delivered by Prof. Pietro Castellino, director of the first Clinica medica of the University of Naples, who spoke on the new tasks of medicine in relation to the athletic activities of youth. Medical science, said the speaker, is called on today to protect the young groups of athletes; to stimulate and support their activities and to supervise and direct them in such a manner that they may improve and not impair their bodies that are not yet completely formed. After recalling that also in antiquity the physicians sought in gymnastic training the therapeutic means for the morphologic development of the human form, Castellino explained the laws that govern the growth of the individual and the factors that, during ontogenetic maturation, may cause deviations in the development. The morphologic combinations of De Giovanni may be summed up in three types: the first (the lanky type) is characterized by the excessive development of the limbs as compared with the trunk; the second, or normal, type presents

a better balance between trunk and limbs, and the third, the brachiotypical or megalosplanchnic type, in which there is an excessive development of the trunk at the expense of the limbs. According to Professor Castellino, the constitution is the resultant (not only from the morphologic but also from the physiologic and psychologic point of view) which, on the basis of the so-called laws of correlation, is established in an individual; which nevertheless assumes its own equilibrium, its special dynamic attitude, and a special capacity to react to the stimuli of the environment. This ensemble of coordinations—anatomic and functional—constitutes the individuality. The speaker then illustrated the development of the organs and the apparatus that are the most important for the evolution of the individuality—namely, the genital apparatus, the muscular and the skeletal systems, the hematic apparatus and the circulatory system. Between infancy and puberty the heart increases ten times in volume, while the aorta increases during that period only three times in volume. In the child the heart is more developed in the right segment; with the attainment of puberty, the right and left halves tend to become equal in volume, but after age 40 the left ventricle is dominant. It is especially to the heart of the athlete that the sport physician must give his chief attention, ascertaining whether or not it is in a state of regular evolution; whether or not it has suffered from an excess of bodily effort; whether or not it is capable of enduring prolonged exertion. Other examinations of semeiologic and therapeutic value pertain to the problems affecting the relations between heart and lungs; between the heart and the blood vessels, between the heart and the kidneys, and between the heart and the neuro-endocrine apparatus. It will be necessary to ascertain also whether or not the lungs are able to collaborate with the cardiac functioning.

BUDAPEST

(From Our Regular Correspondent)

May 21, 1930.

The Early Maturity of Children

Of late, secondary schools in Hungary have been witnessing many sensational events: frequent suicides, truancy, disappearances, school revolutions, the forging of certificates and the insulting of teachers. Some weeks ago a boy, aged 12, fired a shot at his comrade, in Arad, Transylvania, causing his death. These crimes and offenses are tried in the juvenile court, which is overcrowded with work. Prominent psychologists and educators have searched for the causes of these scandals, which manifest themselves so strikingly in the lives of the young. Dr. Stephan Maday, president of the Hungarian Society of Individual Psychology, believes that the examinations should be canceled and that instead of them inquiries should be made into the intelligence and ability of the children with full psychograms; that is, drawings of their characters. The dread of a bad certificate is due mainly to the fact that by reason of the critical economic condition children are treated more rigorously in the schools and at home than they should be. It is wrong, he said, to carry forward the pressure of the economic position to the children and to make them feel our own misery. If we educate our children with threats and intimidation, the future generation will become nervous and be wrongly inclined and will be unfit for the great struggle of life. Another prominent psychologist said that the main reason for the depravity of children is to be sought in the depressed atmosphere of the home. We could call this state of the juveniles a false precocity, which makes them like adults. In the present unsettled conditions, adults have lost their natural authority over children; parents have no confidence in the educational system in which they themselves have been brought up, and are incapable of directing the education of their children. This spiritual crisis is still more manifest in girls, asserting itself in melancholy and inclination to suicide, which could be explained, perhaps, by the fact that the future of women points toward a new setting. Formerly the future of a woman was no problem; it decidedly is at present. Women now have to choose careers, while formerly they had to choose only between marrying or remaining spinsters. It is regrettable that children are much unhappier than they used to be. One cause of their unhappiness is that they see ever fewer ideals and less fancy among the grown ups.

Bronchial Asthma and Gravidity

Dr. Barsony studied the occurrence of bronchial asthma in pregnant women and arrived at the following conclusions: (1) The occurrence of bronchial asthma during pregnancy is rare; (2) if it occurs, we may regard gravidity as the provoking moment of bronchial asthma; (3) bronchial asthma may occur with the first pregnancy or with later pregnancies; (4) the complication of bronchial asthma is a serious menace to the life of the fetus; (5) the termination of the process of gestation does not insure the improvement of this complication—at best the pregestational condition may recur; (6) in case of this complication, gestation is not to be interrupted, but the complicating disease should be treated.

When Should Gestation be Interrupted in Cardiac Patients?

Dr. Frigyessi, professor of obstetrics and gynecology at the University of Budapest, sums up the indications for interrupting pregnancy in cardiac patients: (1) Gestation is to be interrupted in women suffering from organic heart diseases, if decompensation does not entirely recede or if it returns after recession; (2) in cases of endocarditis occurring or recurring in pregnant women; (3) if the cardiac disease is complicated by the involvement of another valve or by some other more serious disease such as tuberculosis, nephritis, kyphoscoliosis of a greater degree or exophthalmic goiter; (4) obvious disease of the heart muscle or its insufficiency.

Congress of the Hungarian Medical Association

The National Medical Association convoked an extraordinary congress, May 4. The more important items on the program were: 1. The displacement of the Hungarian medical community by social insurance. After a heated discussion the congress passed a resolution adopting the system of free choice. 2. The question of free medical attendance. 3. The cessation of nonpaid medical positions. 4. The regulations of the salaries of physicians employed in public hospitals. 5. The formation of the World Association of Hungarian Physicians, in which Hungarian physicians living abroad in the pension union of the National Medical Association are enrolled. Since the termination of the war many Hungarian physicians have emigrated to all parts of the world, owing to the adverse financial conditions, in consequence of the mutilation of the territory of Hungary. 6. The establishing of an employment bureau within the frame of the world association.

Sterilization of Degenerates Recommended

The Hungarian Psychiatric Society held a conference in which Dr. Stephan Zsako, senior physician in Dicsoszentmarton, Transylvania, read a paper on the fight against mental diseases. He explained that the best means for combating mental disorders was the segregation of the mentally diseased, fighting against alcoholism and prostitution, the sexual enlightenment of youth and the public in general, and the establishing of an institution that would devote all its energy to the study of heredity. He emphasized that the propagation of families of high intelligence ought to be promoted by way of moral and financial support and that provision ought to be made for checking the excessive propagation of degenerates and the mentally unfit. Zoltan Rath expressed the opinion that in practice it is difficult to recognize the disseminators of mental disease, because the weak minded propagate twice as quickly

as normal persons. This state of affairs is apt to conduce to the slow but sure degeneration of mankind. Dr. Mandel of Balassagyarmat read a report on the family nursing of psychopathic patients. He said that it is not an easy task to introduce this system of treatment into the rural parts of Hungary. In the western countries of Europe this method proved to be a helpful institution, while in Hungary it has gained foothold in later years only, because the public dreaded to receive mental patients into their homes. Persevering propaganda has resulted in defeating this resistance, and at present thousands of patients have been placed in selected private families, to the good of the unfortunate patients. Among men nursed in families the strongest manifestation of mental derangement is a tendency toward vagrancy; in women it is excessive sexuality.

Eczema in Bakers and Protection by Law

The director general of labor has reported the results of his inquiry on the nature and incidence of eczema in bakers.

With relation to this inquiry, the management of the Netherlands central league of Christian workmen has addressed a request to the minister of labor, commerce and industry asking for a revision of the law pertaining to industrial accidents. In the 1928 revision of this law no account was taken of eczema in bakers.

According to an ordinance on the manufacture of bread, persons suffering from eczema may not continue to follow their trade. They are deprived, however, of the protection of the law pertaining to occupational accidents. In the interest of public health, the minister was requested to effect such a revision of the law as would provide such protection.

BUENOS AIRES

(From Our Regular Correspondent)

April 16, 1930.

Rôle of the Pituitary Body in Development of Diabetes

Drs. Houssay and Biasotti presented before the Society of Biology of Buenos Aires a paper that dealt with the important rôle of the pituitary body in diabetes. Dr. Houssay published in 1929 several articles on his experiments to prove the relations between the functions of the pituitary body and of the pancreas. One of his articles on the same subject appears in the special volume published in honor of Dr. Araoz Alfaro. The author states that the pharmacologic action of the extract from the posterior lobe of the pituitary body is antagonistic to that of insulin. In acromegaly the presence of glycosuria and even of diabetes is a frequent occurrence. Drs. Houssay and Magenta, in experiments made from 1924 to 1930, proved that dogs deprived of the pituitary body are highly sensitive to the toxic and hypoglycemic action of insulin. This work has been confirmed by the experiments of Drs. Geiling, Ishikawa, Britton, Calvery and some others. Drs. Houssay and Biasotti report their experiments on 1,200 toads. They concluded that pancreatectomy causes the development of an intense diabetes, associated with hyperglycemia and glycosuria. When both the pituitary body and the pancreas are removed there is no glycosuria, and glycemia either remains at the same level or increases slightly. When both the pituitary body and the pancreas are removed and an implantation of pituitary gland is made, intense diabetes reappears. The removal of the entire pituitary body and of the pituitary gland causes the same effect on the variations of the level of the sugar content in the blood and the urine. Ignipuncture of the lobus infundibularis prevents the action of the pituitary body on the development of pancreatic diabetes. Implantation of the pituitary gland causes the reappearance of diabetes. Implantation of the pituitary gland in toads deprived of the pancreas causes the appearance of diabetes even when the anterior portion of the cerebrum and encephalon is removed at the level of the pons. In dogs deprived of the pancreas and the pituitary body, diabetes has a benign and slow evolution; hyperglycemia is lower than in dogs deprived of the pancreas only, and the ratio of dextrose and nitrogen content in the urine is low. Dogs deprived of the pancreas lived from 1 to 4 weeks, while dogs deprived of the pancreas and the pituitary body lived from 25 to 180 days. In the last mentioned dogs, the absence of the pancreas was proved. Dr. Iriart proved that diabetes in dogs deprived of the thyroid gland follows the usual and classic evolution. The authors concluded from their experiments that the pituitary body is an important element in the development of diabetes. It constitutes a diabetogenic factor the metabolic mechanism of which should be thoroughly studied.

B C G Vaccine

The B C G vaccine is at present a topic of great importance, especially from the point of view of whether or not the vaccine confers real immunity and can be considered avirulent and harmless. Lignières of Paris has asserted that the vaccine may in some subjects become virulent. In Montevideo, Uruguay, great efforts are being made to encourage the use of B C G vaccine in infants. Posters appear everywhere also, inviting the entire population to be vaccinated with B C G vaccine. Professor Hormaeche of Montevideo presented before the Society of Biology of Buenos Aires and before the Society of Pediatry of Rio de la Plata papers to prove that the B C G bacillus may acquire virulence. In his articles the author presents the results of his experiments in which guinea-pigs with a streptococcal infection were inoculated with a stock of B C G that was avirulent for normal guinea-pigs. Several animals developed tuberculous lesions. The pus from these abscesses was reinjected. In some cases the streptococcus was killed by means of five hours' contact with normal sodium hydroxide. Then the pus was inoculated into the peritoneal cavity of guinea-pigs. The animals developed a generalized and evolutive tuberculosis with caseation, in which lesions abundant tubercle bacilli were found. The fatal and typical tuberculous lesions developed by those animals leave no doubt of the extreme virulence acquired by the tubercle bacilli.

Societies of Pediatrics

April 14 and 15, the Societies of Pediatrics of Montevideo and Buenos Aires held their annual meeting, which is held alternatively in each of the cities, in Buenos Aires. The two most important topics were the etiology of erythema nodosum and vaccination with B C G bacilli. Several articles were read, among the most important of which were those of Drs. Claveaux and Hormaeche of Montevideo. The members of the conferences advised the continuance of studies on these topics.

Fee Splitting

The attention of both the medical profession and the public has been directed to the ever increasing development of dichotomy. The publications *La prensa médica argentina* and *Semana médica* are the organs of attack in the campaign against this practice. It is a common use among surgeons to share the fees they take for operations with the practitioner who calls them to perform the operation. Persons who make the laboratory diagnosis as a rule pay from 30 to 50 per cent of their fees to the practitioner who asks for the analysis. Prescriptions given for proprietaries are subject to fees from the manufacturers, and orthopedists do the same with physicians who prescribe their apparatus, as do some other members of the medical profession in similar circumstances. Generally speaking, the stockholders of large enterprises that sell serums, vaccines, organotherapic extracts and similar products are physicians. This state of affairs is subject to much acrid criticism. Some physicians and professional associations are protesting against such practices, which lower the ethical level of the medical profession.

BERLIN

(From Our Regular Correspondent)

April 29, 1930.

The Congress of Internal Medicine

The annual session of the Deutsche Gesellschaft für innere Medizin was held in Wiesbaden, April 7-10, under the chairmanship of Professor Volhard of Frankfort-on-Main. More than 1,200 German and foreign physicians attended. The first day was devoted to the discussion of "The Hypophysis and Hypophyseal Diseases," papers being presented by Prof. Paul Trendelenburg, pharmacologist of Berlin, and by Professor Lichtwitz, director of the municipal hospital in Altona. Trendelenburg analyzed the physiologic and pharmacologic actions of the various lobes of the hypophysis. The pathologic-anatomic changes are seldom confined to a single portion of the hypophysis, and often they encroach on the vital tissues at the base of the brain. Hence, from clinical examination and histologic observations only one definitely determined fact has been established; namely, that the anterior lobe secretes a growth-promoting substance, which passes into the blood. Special importance attaches to substitution experiments. Doubtless of greater importance than the action of the Evans hormone on the general growth is its influence on other endosecretory organs (thyroid, suprarenals, gonads). In addition, the anterior lobe contains a hormone (called by B. Zondek and Aschheim prolan A) that promotes the evolution of the gonad, and also another hormone, prolan B, that favors the transformation of the follicles into corpora lutea. The intensity of their secretion is regulated chiefly by the gonads. Any subsidence in the activity of the gonads causes the prolan A hormone to be secreted more rapidly and thus furnishes an impulse that makes for the restimulation of the gonad function. The mutual relations between ovarian and prolan secretion explain many previously obscure facts. During pregnancy, the prolans appear in large quantities in the urine. On this fact, Zondek and Aschheim based their pregnancy diagnosis, which has proved to be so reliable. In the middle and the posterior lobes of the hypophysis there are likewise active substances. In addition, the pars neuralis contains some highly active substances: for example, a substance that increases the blood pressure and another that exerts a highly stimulative effect on the uterine musculature. It has not yet been determined whether or not they have hormonal functions. Finally, there is still a seventh active hypophyseal substance that exerts an influence on the water balance. Unanesthetized animals and human beings produce, after the injection of extract of the posterior lobe, a scanty amount of urine with a high percentage of chlorides (P. Trendelenburg and Sato). The point of attack of this hormone lies, it appears certain, partly in the kidneys and partly in the tissues. There is a possibility that the control of the water balance is based on the action of hormones. An adequate conception of the possible results of clinical organotherapy cannot be gained until sufficiently active preparations shall be at our disposal.

L. Lichtwitz of Altona presented the clinical paper on hypophyseal symptoms and hypophyseal diseases. Occupying midpositions between the well known grotesque changes in form and function in these disorders, on the one hand, and the normal condition, on the other hand, there must be a great number of conditions of a milder type, some of them of hormonal origin and some of a reversible nature. The secrets of the hypophysis lie not only in the multiplicity of its hormones but also in the peculiar spatial connection of the glandular and the nervous portion and in its mutual relations to the midbrain. The hypophysis and the midbrain constitute in more than one respect a connected functional system. There is a mutual relation between the anterior lobe of the hypophysis and the gonads. The increased average height of man, and especially the increased length of the lower half of the body, which has been observed in Germany during the past twenty years, would appear to justify the conclusion that the hypophysis or the relations of the gonads to the anterior lobe have undergone a change. The more detailed symptomatology of the hypophysis-midbrain complex has been studied carefully by Lichtwitz on a hundred patients. Pathologic fat formation and pathologic taking on of fat in connection with hypophyseal and mesencephalic processes point in many cases to disturbances of carbohydrate metabolism. The conception that in these cases of hypophyseal obesity a hyperfunction of the pancreas, a superinsulinism, plays a part appears justified.

Further papers discussed the importance of massage. An early advocate of this method, Müller, spoke on the nature, the action, the indications and the results of massage in internal disorders. Preliminary to massage, the tension of single muscles or typical muscle groups must be ascertained. The tension may be acute (injury, suppuration, paralysis), infectious (influenza, typhoid, dysentery, articular rheumatism) or constitutional (rickets, muscular rheumatism, disorders of metabolism). The objective observations of tension are independent of the subjective complaints of the examinee. Massage, an irritative procedure, causes swelling of the muscle resulting even in ecchymosis and in the joint increased pain on pressure; on this irritative action, which covers a period of three or four days, is based the effect, with subsequent diminution of the tension. As the motor apparatus is an auxiliary organ for the circulation, for the evacuation of the glandular secretions and digestion, massage acts on the functioning of all internal organs. In the presence of cardiac insufficiency, a combination with digitalis will sometimes effect a retardation of the pulse; chronic constipation makes necessary massage of the gluteal region and of the pelvic cavity; in nervous paralysis, contractures can be prevented. In children, massage is important for the promotion of body development and the healing of rickets. Massage should not be applied by a masseur in accordance with a certain routine but by a physician, account being taken of the anatomy and physiology of the motor apparatus and of the conditions of tension.

Hartmann of Graz treated "Massage of the Body Covering in Functional Disturbances of the Internal Organs." If, in the presence of subjective complaints, no definite etiologic observations are possible, the body covering should be carefully examined. One can usually find symptoms such as diminished suppleness of the skin, reduced elasticity, gelatinous thickening or nodular formation. These regions are painful. As special types one may distinguish: involvement of the head and neck (migraine, dizziness, congestion in the head), thorax type (oppression, dyspnea, symptoms resembling those of angina pectoris), abdomen type (stomach, intestine and kidney involvement), and finally the muscle type (strandlike changes). Treatment must supply favorable conditions for good circulation of the blood. In addition to the application of heat, the greatest importance attaches, therefore, to massage, which should take the form of roll and stroke massage and should not ordinarily be applied for longer than fifteen minutes.

The papers on focal infection, although accepted with some reservations, received careful attention. In this field, Pässler of Dresden gave the clinical bases. He was one of the first to call attention to the significance of chronic infectious foci (tonsils). The bacteriologic and histologic examinations play a small part in deciding whether, in the presence of a given focus of infection, some other manifestation is causally connected with it. The decisive factor is the clinical observation. Clearing up of the secondary disorder following surgical removal of the primary focus appears to furnish proof of the causal connection. It may happen that several primary foci or irreparable secondary injuries defeat the good results. If, following a renewed irritative condition, there is increased activity in a chronic focus of infection and elsewhere pathologic organic manifestations, that may be interpreted as pointing to a causal

connection. Likewise, if, in the same patient, there is a repetition of pathologic manifestations that are known to be common secondary conditions, the existence of a focal infection can be assumed. The exacerbation of a disorder following surgical intervention in a focal infection may be taken, with reservations, for evidence of a causal connection. On the basis of this view and of clinical observation, a focal infection is assumed for a great number of often apparently independent disorders, such as rheumatism, renal disorders, appendicitis, cholecystitis, gastric and duodenal ulcer, skin disorders and rheumatic iritis. Rosenow of Rochester, Minn., whose address awakened great interest, spoke on focal infection and selective localization. The absence of acute or clinically easily detectable inflammatory symptoms at the focus does not prove absolutely that no pathogenic organisms are present. Depending on the conditions in each individual case, the therapeutic indications may be removal of the foci or vaccine treatment. The selective localization is shown by animal experimentation. The organisms isolated from one or more foci in the patient produce in the experimental animal a lesion corresponding to the disorder in the patient. According to a series of more than 6,000 animal experiments, in from 42 to 76 per cent of the animals the following disorders were produced: appendicitis, gastric or duodenal ulcer, cholecystitis, colitis, articular rheumatism, erythema nodosum, chronic arthritis, myositis, neuritis, nephritis, pyelonephritis, herpes zoster, endocarditis, iridocyclitis. The virulence of the micro-organisms is usually slight. Agglutination can be attained only with specially prepared hyperimmune serum. It is uncertain whether the streptococci constitute separate varieties or only modifications of single strains.

The next paper, on focal infection and immunity, presented by Bieling of Frankfort-on-Main, was especially well received. Immunity processes may so change the pathogenicity of fully virulent organisms that they produce chronic organic infections. Experimental double infections with virulent and slightly virulent bacteria may reduce in animal experimentation the pathogenicity of highly virulent strains to such an extent that they no longer produce sepsis but rather a chronic disorder. Furthermore, the observation on horses into which serum has been injected shows that the virulent disease germs injected intravenously into a highly immunized animal are driven from the circulation into certain definite organs, and produce in the heart and in the joints typical disease symptoms. Various species of bacteria may produce the picture of thrombotic endocarditis or arthritis, if they are introduced into the blood stream of the animal previously treated with the same disease agents. Since the pathogenicity of disease agents of the same virulence penetrating the body is dependent on the immunity of the organism attacked, the methods of specific and nonspecific increasing of the immunity and the defense performances of the body have an additional practical importance for combating chronic infectious diseases.

During the discussion that followed, Schottmüller, clinician of Hamburg, who has made a special study of the problems of infection, mentioned that the green streptococci that Rosenow regarded as causative agents are obligate occupants of the mucous membrane. In the animal experiments, we appear to have manifestations that are hard to compare: in human beings pronounced chronic diseases; in the animal, flooding of the organism with entirely "unphysiologic" quantities of causative agents in an experimental period of from forty-eight to seventy-two hours. It is improbable that widely different diseases can be produced by the same or nearly related microorganisms. On account of the danger of uncritical therapeutic inferences, Schottmüller expressed himself as opposed to the theoretical conceptions of Rosenow. Rowntree displayed then in a film the results of sympathectomy in chronic arthritis. In addition to these papers, about 200 discussions from the most widely different fields of internal medicine were presented.

Marriages

CHARLES E. CHEEK, Fuquay Springs, N. C., to Miss Eva Agnes Babcock, of Chase City, Va., May 15.

FRANCIS ERNEST HINCHMAN to Miss Justina Veronica Koss, both of Richmond, Va., June 3.

GEORGE B. ARNOLD, Colony, Va., to Miss Frances Williamson of Lynchburg, May 21.

BOISE S. BOMAR, Atlanta, to Mrs. Walter W. Lowe, in Louisville, Ky., in May.

Deaths

George Neil Stewart, Cleveland; professor of experimental medicine and director of the H. K. Cushing Laboratory, Western Reserve University School of Medicine, died, May 28, in the Lakeside Hospital. Born in London, Ont., in 1860, Dr. Stewart graduated in medicine at the University of Edinburgh in 1889. From 1887 to 1888, he was senior demonstrator in physiology at Manchester University, and from 1889 to 1893 was a George Henry Lewes student at Cambridge. Following further study in Strasbourg he became an examiner in physiology at the University of Aberdeen. In 1894, Dr. Stewart was appointed the eleventh professor of physiology at Western Reserve University, remaining until 1903, when he accepted the chair of physiology at the University of Chicago. Following the founding of the H. K. Cushing Laboratory at Western Reserve University, he returned to Cleveland to direct the laboratory. He was a member of the Ohio State Medical Association and the American Society of Experimental Pathology and the author of the well known "Manual of Physiology." In collaboration with his associates, Dr. Stewart wrote many valuable papers on research in physiology; of late his research concerned chiefly the suprarenals.

George King, New York; Columbia University College of Physicians and Surgeons, New York, 1919; aged 36; assistant professor of clinical medicine at his alma mater; assistant attending physician, out-patient department, Roosevelt Hospital, assistant attending physician to the City Hospital and assistant visiting physician to the Presbyterian Hospital, where he died, June 4, following an operation.

Edgar V. Moffat, Southport, Maine; New York Homeopathic Medical College, New York, 1879; at one time professor of materia medica at his alma mater; formerly on the staffs of the Hahnemann Hospital and the Laura Franklin Hospital for Children, New York, and the Homeopathic Hospital of Essex County, East Orange, N. J.; aged 73; died, May 27, of cerebral hemorrhage.

Jason Samuel Parker, White Plains, N. Y.; Cornell University Medical College, New York, 1902; member of the Medical Society of the State of New York, and the American College of Surgeons; on the staffs of the White Plains Hospital, and the Grasslands Hospital, Valhalla; aged 51; died, May 24, of pneumonia complicated by septicemia.

Benjamin Walter Provost ⊕ Wenatchee, Wash.; Loyola University School of Medicine, Chicago, 1916; member of the American Psychiatric Association; served during the World War; on the staff of the Central Washington Deaconess Hospital; aged 42; died, April 25, of embolic pneumonia and acute endocarditis.

Edwin Roy Tenney, Kaunakakai, Molokai, Hawaii; University Medical College of Kansas City, Mo., 1897; served during the World War; formerly coroner of Wyandotte County, Kan.; aged 56; died, May 10, in the Queen's Hospital, Honolulu, of heart disease, following an operation on the kidney.

Claren E. Stewart, Jackson, Mich.; Medical Department of Western Reserve University, Cleveland, 1888; aged 75; member of the Michigan State Medical Society; member of the staffs of the Mercy Hospital and the W. A. Foote Memorial Hospital, where he died, May 18, of carcinoma of the colon.

Edgar Horace Farr ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1896; formerly assistant professor of otology, New York Post Graduate Medical School; on the staff of the Manhattan Eye, Ear and Throat Hospital; aged 56; died, June 2, in St. Mark's Hospital.

John H. McCaughan, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1897; member of the Missouri

State Medical Association; formerly on the staff of the Christian Hospital; aged 60; died, May 2, of injuries received when he fell from a second story window.

Charles L. Paisley, Farmington, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1891; member of the Iowa State Medical Society; aged 64; died, May 13, in the Graham Protestant Hospital, Keokuk, following an operation for appendicitis.

Archibald Lyle Macleish ⊕ Los Angeles; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1881; member of the American Ophthalmological Society and the American College of Surgeons; aged 75; died, May 22, of myocarditis and nephritis.

Bruce Elmore ⊕ Seattle; Columbia University College of Physicians and Surgeons, New York, 1903; member of the American College of Surgeons; veteran of the Spanish-American and World wars; formerly lieutenant, U. S. Navy; aged 53; died, in May.

Charles Eli Price, Philadelphia; Jefferson Medical College of Philadelphia, 1900; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 53; died, May 11, in the Philadelphia General Hospital of chronic encephalitis.

Roy Vermont Hannell, La Fayette, Ind.; Medical College of Indiana, Indianapolis, 1903; member of the Indiana State Medical Association; served during the World War; formerly county coroner; aged 52; died, May 23, of diabetes mellitus and myocarditis.

John Albert Patterson, Concord, N. C.; University College of Medicine, Richmond, 1911; member of the Medical Society of the State of North Carolina; on the staff of the Concord Hospital, where he died, May 17, of a kidney infection; aged 47.

Cook Prewitt Gregg, Winslow, Ariz.; Barnes Medical College, St. Louis, 1900; member of the Missouri State Medical Association and the Arizona State Medical Association; served during the World War; aged 52; died, May 1, of heart disease.

Elmer U. Powell, Greentown, Ind.; Fort Wayne College of Medicine, 1884; member of the Indiana State Medical Association; formerly bank president; aged 67; died, in May, in the Howard County Hospital, Kokomo, of heart disease.

Paul Shaeffer Mabry, Prescott, Iowa; St. Louis University School of Medicine, 1904; served during the World War; aged 53; died, May 21, in the U. S. Veterans' Hospital, Fort Bayard, New Mexico, of chronic pulmonary tuberculosis.

George Hays, La Fayette, Ind.; University of Louisville (Ky.) School of Medicine, 1912; member of the Associated Anesthetists of the United States and Canada; aged 43; died, May 10, in St. Elizabeth's Hospital, of heart disease.

Charles W. Merrimann, Beloit, Wis.; Hahnemann Medical College and Hospital, Chicago, 1889; formerly member of the school board and state legislature; aged 73; died, May 18, of pneumonia following a cerebral hemorrhage.

Edward Joseph Tully, Fitchburg, Mass.; Harvard University Medical School, Boston, 1892; member of the Massachusetts Medical Society; aged 59; died, May 31, of chronic nephritis, uremia and chronic endocarditis.

John Wilson, Liberty, Mo.; St. Louis Medical College, 1866; past president of the Jackson County Medical Society; Confederate veteran; aged 91; died, March 28, of cerebral hemorrhage and angina pectoris.

Clayton Kendall Haskell ⊕ Staten Island, N. Y.; Albany Medical College, 1901; formerly surgeon, U. S. Public Health Service Reserve; aged 54; was found dead, May 22, of angina pectoris and coronary sclerosis.

Albert Cruse Morozzi, Honey Brook, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1894; aged 57; died, May 15, in the home of his sister in Philadelphia, of heart disease and nephritis.

James Anderson ⊕ Fort Worth, Texas; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1885; aged 71; died, May 8, of chronic myocarditis, asthma and pulmonary arteriosclerosis.

Philip Damas Noland, Kouts, Ind.; Kentucky School of Medicine, Louisville, 1888; Medical Department of the University of Illinois, Chicago, 1901; aged 70; died, May 16, of carcinoma of the stomach.

Harry LeRoy Jones, Phoenix, Ariz.; Baylor University College of Medicine, Dallas, Texas, 1928; aged 43; died, May 16, of injuries received when the automobile in which he was driving, overturned.

Charles B. Keeler ⊕ Darien, Conn.; Hahnemann Medical College and Hospital, Chicago, 1888; formerly health officer of New Canaan; aged 64; died, May 9, of mitral stenosis and acute nephritis.

Adrinette L. Le Fevre, Blackwood, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1889; aged 70; died, May 18, of heart disease, in the home of her daughter in Weehawken.

Walter Parry Guy, Los Angeles; Rush Medical College, Chicago, 1909; member of the California Medical Association; aged 47; died, April 3, of coronary sclerosis, thrombosis and myocarditis.

Elnora Cuddeback Folkmar, Washington, D. C.; George Washington University Medical School, Washington, 1909; aged 67; died, April 20, in the Emergency Hospital, of cerebral hemorrhage.

Joseph Williams, Boston; McGill University Faculty of Medicine, Montreal, Que., Canada, 1881; member of the Massachusetts Medical Society; aged 80; died, May 3, of coronary infarction.

William C. Burke, Dallas, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1884; aged 75; died suddenly, May 22, of cerebral hemorrhage and nephritis.

Albert Louis Usset ⊕ Chester, Pa.; Medico-Chirurgical College of Philadelphia, 1915; member of the staff of the Chester Hospital; aged 39; died, May 6, of carcinoma of the colon.

Robert Gordon Koger ⊕ Cheney, Kan.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1905; aged 48; died, May 14, of endocarditis.

James Edward Haggerty, Detroit; George Washington University Medical School, Washington, D. C., 1906; aged 58; died, May 8, in the Harper Hospital, of spinal meningitis.

Olaf E. Krogstad, Minneapolis; University of Vermont College of Medicine, Burlington, 1893; aged 68; died, May 14, of myocarditis, coronary sclerosis and angina pectoris.

Arthur Ernest Gillett, Walcott, Iowa; Northwestern University Medical School, Chicago, 1908; aged 51; died, May 16, in St. Luke's Hospital, Davenport, of heart disease.

Lynn J. Gallup, Norfolk, Va.; College of Physicians and Surgeons, Baltimore, 1898; aged 52; died, May 4, in a hospital at Marion, of cerebral hemorrhage.

Justus Vinton Bacon, Chicago; Chicago Medical College, 1885; member of the Illinois State Medical Society; aged 71; died, March 10, of pneumonia.

Robert Plummer Hammie, Bridgeport, Conn.; College of Physicians and Surgeons, Boston, 1908; aged 54; died, March 1, of carcinoma of the stomach.

Butler Stewart Crossy, St. Louis; Kentucky School of Medicine, Louisville, 1893; aged 57; died, in May, of chronic nephritis and heart disease.

Charles W. Watson, Minneapolis; Medical Department of Hamline University, Minneapolis, 1897; aged 63; died, May 2, of epidemic encephalitis.

James Samuel Shaffer ⊕ Terre Haute, Ind.; University of Louisville (Ky.) School of Medicine, 1909; aged 46; died, May 13, of myocarditis.

Alfred L. F. Albertson, Cleveland; Cleveland Medical College, 1875; aged 83; died, May 25, of bronchopneumonia and septic endocarditis.

Reuben Benjamin Durrett, Atlanta, Ga.; Atlanta Medical College, 1893; aged 66; died, May 24, in Buckhead, of cerebral hemorrhage.

Charles Howard Goodrich, Sandyville, Ohio; Western Reserve University School of Medicine, Cleveland, 1887; aged 75; died, May 5.

Charles Russell MacTavish, Tavistock, Ont., Canada; University of Toronto Faculty of Medicine, 1917; aged 37; died, April 11.

Edward George F. Wendland, Cincinnati; Miami Medical College, Cincinnati, 1886; aged 72; died, May 3, of angina pectoris.

Oliver H. Perry Jeffries, Hopkinton, Iowa; Rush Medical College, Chicago, 1876; aged 79; died, May 13, of heart disease.

William J. Hummel ⊕ Ableman, Wis.; Milwaukee Medical College, 1902; aged 50; died, May 21, of heart disease.

Hiram Bailey, Adairville, Ky.; Vanderbilt University School of Medicine, Nashville, 1894; aged 63; died, May 5.

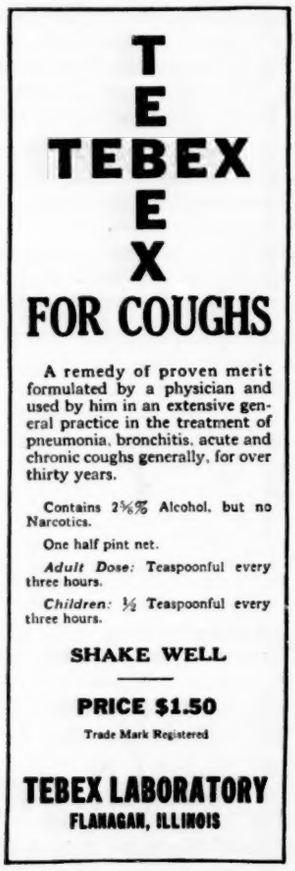
George W. Rains, Madison, Ind. (licensed, Indiana, 1905); aged 72; died, May 19, in Wirt, of cerebral hemorrhage.

Bureau of Investigation

TEBEX

Another Alleged Consumption Cure

Tebex, which is put out by the Tebex Laboratories, Flanagan, Ill., is, according to the carton and the bottle label, "For Coughs." Further, according to the trade package, the stuff is described as: "A Remedy of Proven Merit—For Over Thirty Years." The physician who is alleged to have formulated Tebex is Julian W. Zinn of Flanagan, Ill. Dr. Zinn was born in 1862 and holds a diploma from the Cincinnati College of Medicine and Surgery, 1888. He was licensed in Illinois the same year. He is not a member of his local society or of the American Medical Association.


T
E
TEBEX
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X
FOR COUGHS
A remedy of proven merit formulated by a physician and used by him in an extensive general practice in the treatment of pneumonia, bronchitis, acute and chronic coughs generally, for over thirty years.
Contains 2⅛% Alcohol, but no Narcotics.
One half pint net.
Adult Dose: Teaspoonful every three hours.
Children: ½ Teaspoonful every three hours.
SHAKE WELL
PRICE $1.50
Trade Mark Registered
TEBEX LABORATORY
FLANAGAN, ILLINOIS

While the carton and bottle label do not mention tuberculosis, a circular that comes with the trade package deals with nothing else. The circular describes nine cases of tuberculosis, all of which are alleged to have been cured by taking Tebex. The ninth case is that of Julian W. Zinn himself, in which Zinn declares that in trying to treat himself for tuberculosis, he formulated Tebex, and has used it for over thirty years in the treatment of tuberculosis and other pulmonary diseases.

The Bureau of Investigation submitted to the A. M. A. Chemical Laboratory some specimens of Tebex, with the request that an examination of the nostrum be made. The Laboratory report follows:

LABORATORY REPORT

"Some original bottles of Tebex (Tebex Laboratories, Flanagan, Ill.) were submitted to the A. M. A. Chemical Laboratory for examination. In each trade package there was an eight-ounce bottle containing about 235 cc. (approximately eight fluid ounces) of a thick, viscous liquid, which separated into two distinct layers of about equal volume. The upper layer was a thick appearing, white emulsion, while the lower was a clear, syrupy liquid; upon agitation the contents became homogeneous for a relatively short period of time. The mixture had the odor of creosote; a few drops placed on the tongue gave at first a burning sensation, followed by a decided sweetness, suggestive of syrup or glycerin. The reaction of the mixture to litmus was neutral. The specific gravity at 25 C. was 1.165.

"No information concerning the composition of Tebex appeared on either the trade package, label, or in the accompanying circular, except the following declaration: 'Contains 2⅝ per cent Alcohol, but no Narcotics,' which appeared on the trade package and the label.

"Qualitative tests indicated the presence of creosote, cane sugar, glycerin, liquid petrolatum, water and a substance precipitable by alcohol, suggestive of an emulsifying agent, similar to gum acacia or tragacanth. Heavy metals, halides (such as iodine compounds), alkaloids and local anesthetics were not found. The 'sulphated' ash was 0.05 per cent. The total solids were found to be 67.5 per cent, consisting essentially of a relatively large amount of a thick, colorless, syrupy mass, and on cooling, characteristic crystals of cane sugar crystallized out.

"The product was not deemed of sufficient importance to warrant further quantitative work. The Laboratory concludes that Tebex is essentially a petrolatum emulsion to which has been added some creosote."

THE HAMILTON ADJUSTING ASSOCIATION

One Physician's Experience with This Collection Agency

The Hamilton Adjusting Association of New York City has been the subject of several complaints that have been sent in to THE JOURNAL by physicians. One of the latest forms the subject of this article. Dr. C. H. Oliver of Douglas, Arizona, has described briefly what happened in his case. It appears that the doctor turned over to the Hamilton Adjusting Association, Inc., some seventy-nine delinquent accounts. The statement submitted by the collection agency to Dr. Oliver under date of May 2, 1930, and reproduced in facsimile, graphically tells the doctor's experience. It will be noticed that the sum total of Dr. Oliver's business with this agency is that he is "out" $9.50!

By studying this statement, it will be seen that the Hamilton Adjusting Association collected $60, of which they rightly, under the contract, claimed fifty per cent, or $30. They then charged the doctor fifty cents each as a "service charge" on each of the seventy-nine accounts turned over to them. This made an additional indebtedness of the doctor to the collection agency of $39.50, or a total of $69.50 that the doctor was owing. As the company had only collected $60, Dr. Oliver gets $9.50 less than nothing for himself!

"A National Institution"

Hamilton Adjusting Association
Incorporated
1457 Broadway
Times Square

New York 5/2/30 19

Dr. C. H. Oliver
Douglas, Ariz

File No. 13151 STATEMENT

Debtors Name	Installment		Paid in Full		Com
	Paid Us	Paid you	Paid Us	Paid You	
P. Duran	20.00				10.00
Lechy			2.00		1.00
C. Donahue			5.00		2.50
R. Smith			14.00		7.00
J. Shawner			19.00		9.50
79 Service Charges @50¢					39.50
					69.50
	Less collections by us				60.00
	BALANCE DUE US				$9.50

PAID TO YOU DIRECT $
PAID TO US $
COMMISSIONS $
BALANCE DUE YOU $
BALANCE DUE US $9.50

Commission are due on date payments are made and as w depend upon our commission to successefully carry on business
Please remit by return mail
(SEE OTHER SID)

The doctor in his letter to THE JOURNAL states that he did not sign any agreement to pay them fifty cents per account. In fact, the terms of the contract call for no such charge, except on those accounts in which an incorrect address has been given. The doctor declared that not over a dozen of the seventy-nine accounts turned over to the Hamilton Adjusting Association, Inc., had the addresses incorrect.

The printed contract of the terms on which the Hamilton Adjusting Association makes collections reads as follows:

"Commission at the rate of 50% is charged on the first $100.00 of the aggregate amount collected on the within listed claims or accounts, and on

claims or accounts settled or collected through Magistrates, Attorneys or Legal Process, Installment Collections and outlawed accounts.

"Commission of 25% is charged on all other collections.

"Commission is charged on all settlements made and on amounts collected, whether payments are made to Association or Client, also upon accounts settled satisfactorily, withdrawn or ordered dropped during process of adjustment. Failure or refusal to furnish necessary evidence of indebtedness upon request, such as original notes, itemized statements or information relative to claims, will be considered instructions to drop, and regular rate of commission charged.

"If payments are made to the Client, the commissions shall be remitted immediately to the Association at its office in New York, N. Y.

"For tracing or other expense on claims or accounts with incorrect address, a charge of fifty cents will be made, to be paid out of any money recovered under this agreement.

"Claims not in process of adjustment will be released upon request in 12 months.

"No agent has authority to alter this agreement, verbally or in writing, or to make any verbal or written agreement relative to terms of agreement or modes of collecting, or to receive or receipt for any money from debtors or client, and Association is not bound by any stipulation or representation not embodied herein."

It will be noticed that this contract has practically all of the inequitable clauses that we have criticized in previous articles on the subject of collection agencies. The clause which makes it in the interests of the agency to collect on installments rather than in full, is there. The clause which makes it necessary for the physician to pay fifty per cent of the face value of any one of the accounts that he wishes to withdraw or order dropped during the alleged process of adjustment is also there. The clause that makes it obligatory on the part of the physician immediately to send to the collection agency any money that may be paid to him direct, is also in the contract, while a clause which would require the collection agency to render an accounting of the money collected at definite stated intervals is just as conspicuous by its absence.

Correspondence

"MYOCARDOSIS"

To the Editor:—In THE JOURNAL, May 24, there appeared an article entitled "Myocardosis," by Drs. Albert S. Hyman and Aaron E. Parsonnet. This article attracted my attention because, about two years ago, I thought of using that term to designate a certain group of anatomicopathologic states of the heart characterized by acute or subacute degenerative processes, such as granular, hyaline and fatty degeneration, caused, occasionally, by constitutional infections or intoxication. Such a term offers a correct classification of this group as distinguished from acute, subacute and chronic inflammatory processes, and from fibrotic degeneration of the myocardium. Moreover, it corresponds exactly pathologically to the true meaning of nephrosis from which the authors draw their analogy, as used in degenerative nephropathies according to the following classification of Fahr:

Simple nephrosis:
(*a*) First stage: albuminous degeneration.
(*b*) Second stage: hyaline degeneration.
(*c*) Third stage: necrosis (mercury poisoning).

Distinctly characterized nephrosis:
(*a*) Lipoid nephrosis.
(*b*) Amyloid nephrosis.
(*c*) Pregnancy nephrosis.
(*d*) Storing nephrosis.

Using the term "myocardosis" in that sense would be of distinct advantage in getting a clear conception of such anatomic changes and would help in the classification of all possible pathologic changes of the myocardium into: myocarditis: (*a*) acute; (*b*) chronic; myocardosis: fatty, granular, hyaline, necrotic and others; myofibrosis cordis: (*a*) secondary to coronary sclerosis; (*b*) secondary to inflammatory changes.

Using the term myocardosis as Hyman and Parsonnet do, to designate fibrotic changes of the myocardium, is as superfluous as it is incorrect. It is superfluous as the good descriptive terms "fibrous myocardium" or "myofibrosis cordis" are available to designate the existing pathologic states in such hearts, and there is no need of any other confusing and meaningless terminologies. It is incorrect because the authors attempt to draw an analogy between myocardosis as they interpret it and the nephrosis of Fahr or of Epstein. An arteriosclerotic kidney is certainly not considered one of nephrosis, yet the authors attempt to employ the term myocardosis to designate the arteriosclerotic heart.

I agree with the authors that the term "chronic myocarditis" is greatly misused and misinterpreted. Many cases assigned to the anatomic diagnosis of chronic myocarditis prove to be those of myofibrosis cordis or of arteriosclerotic hearts on postmortem examination, with no evidence of active inflammatory changes as the word "myocarditis" would indicate. I also agree with the authors that, in many cases of their so-called myocardosis resulting from coronary sclerosis, "postmortem examination may reveal little or no pathologic changes, the stenocardia apparently being a physiologic process of such short duration that no concomitant anatomic change has taken place." But why use another word intending to designate the foregoing two conditions? In the case of myofibrosis cordis, if a careful analysis of facts is made, one will usually arrive by inference at its proper diagnosis and so designate it by the right term "myofibrosis." In the case in which death is physiologic, we certainly would not want to attach a vague term to the process tending to indicate some degenerative change not found anatomically.

LOUIS H. SIGLER, M.D., Brooklyn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TYPHOID MARY

To the Editor:—I have been unable to trace Typhoid Mary's career after she was sent to the Detention Hospital in New York in 1920. I have the impression that she has died but I cannot verify it. Can you give me any later data with regard to her?

M. E. MORSE, M.D., Catonsville, Md.

ANSWER.—"Typhoid Mary" is still alive and is quarantined at Riverside Hospital on North Brother Island opposite One Hundred and Thirtieth Street, New York. She is fairly comfortable, helping with cleaning glassware and such things and is on a small salary. Her stools are constantly used by the New York Department of Health as a control for mediums. If Mary's stools do not show a positive test, it is taken for granted that the medium must be wrong.

ANTIDOTE TO POISONING WITH APOMORPHINE

To the Editor:—When a person has been given an overdose of apomorphine and is apparently in danger or in danger of death, what is the best physiologic antidote?

M.D., Louisiana.

ANSWER.—The emetic action might be antagonized by narcotics, most efficiently by small doses of morphine or its esters; less well by chloral or chloroform, of which large doses are required. Against the consecutive circulatory collapse and respiratory depression, caffeine, epinephrine and camphor are recommended and have been used with apparent success.

BARIUM CHLORIDE FUMES

To the Editor:—I am anxious to obtain some data on the toxic effect of barium chloride fumes, the material being used in a heated condition when the fumes are given off. I am familiar with the physiologic effect of the barium chloride taken orally, but would the amount of barium chloride absorbed through the lungs be greater than that given orally to produce same physiologic effect? Please omit name.

M.D., Iowa.

ANSWER.—Little is known as to the action of barium chloride taken into the body through the pulmonary tract. The volatility of this substance is slight, the melting point being about 960 C. Below that temperature the vapor pressure is low. Fumes produced at 960 C. necessarily are cooled before entering the respiratory tract, resulting in precipitation in the air and the deposition of barium chloride dust along the upper respiratory

tract. Swallowing may then lead to the intestinal form of poisoning, or at least to an impure form of pulmonary invasion. Apart from experimental insufflation with animals, no procedure is known that will afford the information desired.

PROBABLE INCIDENCE OF PREGNANCY FOLLOWING REMOVAL OF OVARIAN CYST

To the Editor:—I have been unable to find any information with regard to the probable incidence of pregnancy in a young woman following the removal of a benign ovarian cyst, the remaining ovary and tube being normal at the time of operation. Can you tell me whether the present idea is that the remaining ovary takes on the capacity for more frequent ovulation, and whether there is any great likelihood of sterility? The figures that I have seen mention the frequency of normal pregnancy, but they do not consider the matter from the point of view of the number of patients who are in the child-bearing age or from the influence of other factors. Kindly omit my name. M.D., Massachusetts.

ANSWER.—It is assumed that, in the case cited, the entire ovary that contained the ovarian cyst was removed. Women who have one ovary that is normal have practically as much opportunity of becoming pregnant as women with two ovaries. Women with one ovary menstruate every month and not every two months, and menstruation, with rare and still debatable exceptions in the human being, occurs only after ovulation. The latter indicates that there is an ovum that is susceptible of fertilization. One ovary suffices because during the reproduction period of a woman there is an enormous waste in the number of graafian follicles, most of which have the potentiality of being fertilized. In the case cited, a cyst may develop in the remaining ovary, but even this will not always prevent conception.

POSSIBILITY OF CHRONIC EFFECTS FROM SULPHUR DIOXIDE POISONING

To the Editor:—Kindly give me information in regard to chronic sulphur dioxide poisoning, including literature. A patient entered our hospital today for complete laborataory examination and diagnosis. He inhaled some of the fumes while installing a Kelvinator refrigerating machine for a public service company. The history reveals that he had a pulse rate of 130 immediately after the ten minute exposure in January, 1929. He rested in bed for three weeks following the inhalation and has suffered from severe colitis with much constipation ever since. This case is of importance mostly from a medicolegal standpoint.

ERNEST KRAFT, M.D., Danville, Ill.

ANSWER.—The existence of chronic sulphur dioxide poisoning as a clinical entity is a moot matter. Sulphur dioxide is a severe irritant. Twenty parts per million will cause immediate irritation to the eyes; 400 parts per million may lead to death. The signs and symptoms that arise are nearly always related to the respiratory tract and include marked coughing, respiratory tract edema, expectoration of blood-stained mucus, lobular pneumonia, cyanosis, and changes in hemoglobin due to loss of oxygen.

When, however, men work in relatively low concentrations of sulphur dioxide and are subject to its action over long periods of time, apparently few harmful results may be detected. Persons who are already sufferers from pulmonary lesions may have these conditions aggravated, which is notably true of bronchitis.

Examinations of workers in the refrigerator industries using this substance as a refrigerant, and in paper mills likewise utilizing sulphur dioxide, indicate that no great harm results from this substance.

When sulphur dioxide is respired, the moisture of the tissues with which it comes in contact speedily leads first to the formation of sulphurous acid, then on oxidation to the formation of sulphuric acid, and is converted into harmless sulphates. It is granted that the traces of the sulphurous acid may lead to some local action along the respiratory tract.

In the circumstances of the accident mentioned in this query, it is possible that the sulphur dioxide brought about some harm to the respiratory tract of the refrigerator worker. This direct action was transient, and the sulphur dioxide itself, together with the derived sulphates, quickly disappeared from the body. The only way that a prolonged disease state may be associated with this accident is to demonstrate that a primary chemical irritation was followed by a bacterial invasion, with extensions into other portions of the body.

Further data may be found in:

Henderson, Yandell; and Haggard, H. W.: Noxious Gases and the Principles of Respiration Influencing Their Action, New York, Chemical Catalog Company, 1927, p. 130.
Bulletin 98, Bureau of Mines, U. S. Dept. of Interior, 1915.
Fieldner, A. C., and Katz, S.: *Engin. & Mining J.* **107**: 693, 1919.
Hamilton, Alice: Industrial Poisons in the United States, New York, Macmillan Company, 1925, p. 323.
Pedley, T. G.: Thesis submitted for the degree of doctor of public health, Harvard School of Public Health, 1923.

SHAPE OF HEAD OF PREMATURE INFANT

To the Editor:—A premature baby was born at the seven and a half month period in a hospital where both mother and baby had ideal care. The first six weeks the baby was in an incubator and the first four weeks was too weak to take nourishment except through a tube, by means of which it was fed its mother's milk. Then it was given breast feedings twice daily, with mother's milk by bottle at other feedings. At the end of the second month the mother's supply of milk failed and since that time all food has been artificial. At birth the weight was 3 pounds, 14 ounces (1.7 Kg.); now at 4½ months its weight is 13 pounds (5.9 Kg.). At birth the baby's head appeared to be of perfect shape but when taken from the hospital there was a flattening of the back of the head with fulness above the ears and fulness of the forehead. Now at 4½ months the baby is normally strong, bright and playful but the back of the head is increasing in flatness and the forehead and above the ears are increasing in prominence. The present diet is a mixture containing cow's milk, 18 ounces; water, 6 ounces; lactic acid, 1 teaspoonful; cod liver oil, 60 drops; Karo syrup, 6 teaspoonfuls. Feedings are given every three hours during the day and two feedings during the night. The baby now appears normal in health, is plump and well rounded physically, has good color and is active and alert. Both parents are university graduates and it has ideal care and home surroundings. Since birth the baby has been continuously under the care of a physician who is a baby specialist. I would greatly appreciate your opinion as to the results that are to be expected as to the probability of this condition increasing or improving. Do you know of any appliances that I could secure that would assist in reshaping the baby's head? If so, kindly advise me. Your assistance will be greatly appreciated. M.D., South Dakota.

ANSWER.—One cannot be sure from the description that actual abnormality is present other than deformity from a continued unchanged position. The possibility of a megacephalus or hydrocephalus should be considered. The prominence of the forehead is characteristic of premature infants. From the description given, the infant has made satisfactory progress. An increase in the vitamin D given and the employment of ultraviolet irradiations seem indicated. It would be well to see that further pressure to the back of the head is prevented by changing the infant's position from time to time or by the use of a padded ring to support the head.

BETANAPHTHOL AND SALICYLIC ACID AS INDUSTRIAL HAZARDS

To the Editor:—I should like your opinion regarding the possible effects to factory workers of salicylic acid and betanaphthol when used under the following conditions: These chemicals are used in a water-proofing mixture of mineral waxes and oils on heavy tent canvas and awnings for rendering them mildew proof. The temperature of the bath is approximately 110 F. or lower. Four or 5 pounds of salicylic acid or of betanaphthol is used in 90 gallons of the water-proofing; or the two chemicals are used in the same bath in the proportion of 3 pounds of salicylic acid and 3 pounds of betanaphthol to 90 gallons of the oil. The chemicals are mixed in a steam jacketed open vat having two ventilating fans above. It is not necessary that the fabrics be handled during this treatment. After treatment the canvas is dried; then it is handled when put through the sewing machine. What precautions do you think should be taken and what harmful effects, if any, might result? A few chemicals which are soluble in mineral oils are efficient for this particular purpose. Salicylic acid has a phenol coefficient of about 2½, I believe. It is important that these heavy cotton fabrics which are to be exposed to atmospheric conditions should be made mildew-proof if possible.

E. S. WEIRICK, Chicago.

ANSWER.—In the trade processes described, no particularly significant hazard is believed to exist in the stage of impregnating the fabric. The temperature of the bath is so low as not to favor the extrusion of large quantities of fumes into the air. Later, however, when the fabric has been dried, some potential dangers exist. Betanaphthol is foremost in the possible sources of harm to exposed workers, acting as an intoxicant much like phenol. Although salicylic acid may act as an intoxicant, it is so freely used for therapeutic purposes that it is believable that the quantities here provided are well below the threshold of harm. In addition, the oxidation process associated with the drying of the oil may lead to the formation of irritant bodies. Betanaphthol is absorbable through the skin. From its use as a therapeutic agent in ointments for skin lesions, well defined systemic poisoning has developed.

In a severe case of betanaphthol poisoning there may take place unconsciousness followed by death without clinical evidence of involvement of any other organs or systems than the brain. More frequently there may be vomiting with nausea, retinal changes, smoky urine with albuminuria and hemorrhea, the usual signs of acute nephritis, enlargement of the spleen and liver with jaundice, and the usual indications of a hepatitis.

As a preliminary step in a program of protection, it would be helpful to know the betanaphthol content of some unit of fabric, such as a square yard. It is quite possible that the oil may become so hard through oxidation as to render unlikely the transfer of any betanaphthol to the hands of workers. This

may be determined by carrying out some one of the well known tests for phenol on washings from the hands at the end of the work day. If betanaphthol may actually be demonstrated on the hands of workers, physical examinations should be carried out on all exposed workers at fairly frequent intervals. This examination should embrace a search for evidences of nephritis, anemia, hepatitis or ocular abnormalities. In addition to the repeated physical examinations, the foremen or others responsible for groups of workers should continually be alert for signs of possible acute poisoning. As a rule, persons known to suffer from nephritis or anemia should not be employed in this type of work.

This attitude of regarding betanaphthol as potentially dangerous in the trade mentioned is, in fact, not based on industrial experience with this substance rather on therapeutic experience wherein fairly low concentrations in oils have occasioned severe poisoning through skin absorption. Thus, betanaphthol may not be wholly absolved of danger in this industry.

The suggestion is made that possibly the use of copper stearate in combination with aluminum stearate, predissolved in small quantities of oil with the aid of carbon tetrachloride, which latter substance may then be evaporated, may prove to be an adequate fungus-repelling agent in this trade process. It is possible that copper stearate may be used in such low concentrations as to produce no objectionable discoloration.

REDNESS OF URINE AFTER TAKING AMIDOPYRINE

To the Editor:—Several days ago my wife had the roots removed from a lower left third molar which had had the crown broken off. Before the removal she was given a hypodermic injection of ⅓ grain (24 mg.) of pantopon (Hoffman-LaRoche) and a proprietary preparation containing amidopyrine and a barbital derivative. The extraction was done under about one-fourth ounce (8 cc.) of 2 per cent procaine hydrochloride. Following the extraction of the roots the socket was swabbed with a dental preparation containing creosote and glycerin. For the pain in the jaw following the operation she has been taking 5 grain (0.3 Gm.) amidopyrine tablets. Since the operation and seemingly beginning with the next urination, her urine has been of a light brownish color, which is not due to concentration (not amber) and this coloration is persisting. I have used myself all of the preparations mentioned at some time or another without the phenomenon of brown urination occurring and wonder which if any of these chemicals could have caused this, what chemical is formed and whether there is any danger in it. Please omit name.

M.D., Missouri.

ANSWER.—Amidopyrine, through a derivative of its antipyrine component, occasionally produces a reddish discoloration of the urine. This coloring material may be precipitated from the urine by means of lead subacetate. It may be abstracted by agitation with chloroform, which suffices to differentiate this condition from hemoglobinuria. The substance is crystallizable and has received the name rubazonic acid (Knorr)). One might also assume the possibility of the discoloration being due to the absorption of products of blood destruction arising from a hemorrhage under the deep fascia, sometimes occurring after the extraction of teeth.

CIRCULATION OF THE HEART VALVES

To the Editor:—In reading THE JOURNAL, March 22, I noticed your answer to Stephen De Fazio of Milwaukee relative to the circulation of the heart valves. Most investigators in this field have failed to substantiate the observations of Luschka. Since the stimulating work of Bayne-Jones in 1917, there have been further reports dealing with the vascularity of the heart's valves (Kerr, W. J., and Mettier, S. R.: *Am. Heart J.* **1**: 96 [Oct.] 1925; Wearn, J. T.: *J. Exper. Med.* **47**: 273 [Feb.] 1928). In our last publication we stated that "seven hundred human hearts have been studied with reference to the existence of blood vessels in the valves"; of these, only fourteen normal hearts had blood vessels present in some of the valves. Since this time under the direction of Dr. Louis Gross an extensive study has been made of the embryology, histology and pathology of the valves and heart and it may yet be possible that even some of these fourteen normal hearts with vascularized valves may prove to have been the seat of a pathologic process.

M. A. KUGEL, M.D., New York.

ANSWER.—It is not surprising that Bayne-Jones's injections showed extensive valvular blood vessels in only a few of the hearts he examined. A few positive results are all that are expected by experienced workers with injection methods. These positive results, however, make the negative ones relatively insignificant except from the standpoint of technic.

Krogh's work and Vimtrup's show that often fine blood vessels are present in tissues which do not appear to contain them even on microscopic examination. Special methods reveal them. Professor Bensley of the University of Chicago has a method which he has developed for showing the blood vessels in the labyrinth of the kidney. Many vessels appear clearly which might escape detection by other methods.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 8, 1930. Sec., Dr. Stuart Graves, 519 Dexter Ave., Montgomery, Ala.

ARIZONA: Phoenix, July 1-2, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

CALIFORNIA: San Francisco, July 7-10, 1930. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

COLORADO: Denver, July 1, 1930. Sec., Dr. Wm. W. Williams, 224 State Capitol Bldg., Denver.

CONNECTICUT: Regular, Hartford, July 8-9, 1930. Sec., Dr. T. P. Murdoch, 79 Elm St., Hartford, Conn. Homeo., New Haven, July 8, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

DISTRICT OF COLUMBIA: Washington, July 14, 1930. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C., Basic Science, June 30, 1930.

ILLINOIS: Chicago, July 8-11, 1930. Supt., Mr. P. B. Johnson, Dept. of Registration and Education, Springfield, Ill.

MAINE: Waterville, July 1-2, 1930. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland, Me.

MASSACHUSETTS: Boston, July 8-10, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

MISSISSIPPI: Jackson, June 26-27, 1930. Sec., Dr. F. J. Underwood, Jackson, Miss.

NEW YORK: Albany, Buffalo, New York, Syracuse, June 23-26, 1930. Chief, Herbert J. Hamilton, Education Bldg., Albany, N. Y.

NORTH DAKOTA: Grand Forks, June 30 to July 3, 1930. Sec., Dr. G. M. Williamson, Grand Forks, N. D.

OPHTHALMIC BOARD: Detroit, Mich., June 23, 1930. Sec., Dr. William H. Wilder, 122 So. Michigan Ave., Chicago, Ill.

OREGON: Portland, July 1-3, 1930. Sec., Dr. C. J. McCusker, Medical Dental Bldg., Portland, Ore.

OTOLARYNGOLOGY BOARD: Detroit, Mich., June 23, 1930. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12, 1930. Supt., Mr. C. D. Koch, Harrisburg, Pa.

RHODE ISLAND: Providence, July 2-3, 1930. Dir., Mr. Lester A. Round, 319 State Office Bldg., Providence, R. I.

SOUTH CAROLINA: Columbia, June 24, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

SOUTH DAKOTA: Deadwood, July 15, 1930. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.

UTAH: Salt Lake City, June 26-27, 1930. Dir., Mr. S. W. Golding, 412 State Capitol Bldg., Salt Lake City, Utah.

WASHINGTON: Seattle, July 10-11, 1930. Basic Science. Dir., Mr. Charles Maybury, Olympia, Wash. Regular, Seattle, July 14-15, 1930.

WEST VIRGINIA: Martinsburg, July 8, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WISCONSIN: Milwaukee, June 24-26, 1930. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis. Basic Science. Milwaukee, June 23, 1930. Sec., Prof. R. M. Bauer, Marquette University, Mil-

California February Examination

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of California, reports the written examination held at Los Angeles, Feb. 3-6, 1930. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Forty-nine candidates were examined, 43 of whom passed and 6 failed. Six physicians were licensed by endorsement of credentials. The following colleges were represented:

PASSED College	Year Grad.	Number Licensed
College of Medical Evangelists	(1929)	1
Stanford University School of Medicine	(1929)	1
University of Colorado School of Medicine	(1924) (1929, 4)	5
Northwestern University Medical School	(1927) (1929, 1, 1*)	3
Rush Medical College	(1921) (1923) (1929, 3)	5
University of Illinois School of Medicine	(1929, 2)	2
State University of Iowa College of Medicine	(1928)	1
University of Kansas School of Medicine	(1929)	1
University of Louisville School of Medicine	(1929)	1
Tulane University of Louisiana School of Med.	(1928) (1929)	2
Harvard University Medical School	(1928)	1
Tufts College Medical School	(1929)	1
University of Minnesota Medical School	(1927)	1
St. Louis University School of Medicine	(1929, 4)	4
Washington University School of Medicine	(1929, 2)	2
Creighton University School of Medicine	(1929, 2)	2
University of Nebraska College of Medicine	(1928)	1
Long Island College Hospital	(1929)	1
University of Rochester College of Medicine	(1929)	1
University of Cincinnati College of Medicine	(1929)	1
Western Reserve University School of Medicine	(1929)	1
University of Oklahoma School of Medicine	(1929, 2)	2
University of Oregon Medical School	(1929)	1
Woman's Medical College of Pennsylvania	(1929)	1
University of London Faculty of Medicine	(1925)	1

FAILED College	Year Grad.	Per Cent
University of Illinois School of Medicine	(1924)	74.4
College of Physicians and Surgeons, Boston	(1916)	65.9
Creighton University School of Medicine	(1929)	73.3
Charles University of Prague	(1921)	72.4†
School of Medicine of Guadalajara	(1921) 64 †, (1923)	69†

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
University of Colorado School of Medicine	(1929)	U. S. Navy
University of Minnesota Medical School	(1904)	U. S. Navy
Columbia Univ. College of Physicians and Surgeons	(1896)	U. S. Navy
Cornell University Medical College	(1927)	N. B. M. Ex.
Johns Hopkins University School of Medicine	(1918)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1925)	N. B. M. Ex.

* This candidate has received his M.B. degree and will receive his M.D. degree on completion of one year's internship in a hospital.

† Verification of graduation in process.

Book Notices

THE PSYCHOLOGY OF CHILDHOOD. By Edgar James Swift, Ph.D., Professor of Psychology in Washington University. Cloth. Price, $3. Pp. 431. New York: D. Appleton & Company, 1930.

The modern child is receiving plenty of attention from a dozen different schools of child training. Dr. Swift has had considerable experience in writing for the general reader. His work indicates thorough acquaintanceship with the literature of his subject. He realizes the importance of developing the child's personality and at the same time the great value of a social consciousness. The child is a combination of emotions, instincts and fears and on this basis it reflects its environment and birth. Discipline must be related to a thorough knowledge of these factors; habits must be established without breaking down personality. In all of this there is the danger of creating more difficulties than would otherwise have existed. Dr. Swift's work is both interesting and conservative.

DIE SCHWANGERSCHAFTSDIAGNOSE AUS DEM HARNE (ASCHHEIM-ZONDEK-REAKTION), PRAKTISCHE UND WISSENSCHAFTLICHE ERGEBNISSE AUS TAUSEND HORMONALEN HARNANALYSEN. Von Dr. S. Aschheim, Leiter des Laboratoriums der Klinik, Frauenarzt in Berlin. Paper. Price, 4.80 marks. Pp. 62, with 9 illustrations. Berlin: S. Karger, 1930.

In this monograph, Aschheim describes every aspect of the pregnancy test that he and Zondek devised. He first discusses the foundations for the test, and then in order the technic, his own practical results, the results of others who investigated the test, sources of error, examination of urine in animals, scientific results, and the significance of hormone urine analysis for hormone therapy. The author with his co-worker Zondek examined more than 1,300 specimens of urine and used more than 11,000 immature mice for his experiments and the clinical application of the test. Among 548 specimens of urine obtained from nonpregnant individuals, Aschheim and Zondek noted only four failures; and among 459 specimens of urine obtained from patients with uncomplicated pregnancy there were only eight mistakes. Hence, the test was accurate in 98.8 per cent of 1,007 cases. A group of other observers reported 1,829 tests, of which 98.3 per cent were correct. At the end of the monograph the author shows how the urine test can be of assistance in scientifically controlling hormone medication. Undoubtedly the urine test of Aschheim and Zondek represents one of the most brilliant examples of the practical results of academic investigation. The test is relatively simple and every large laboratory should be equipped to perform it.

STONE IN THE URINARY TRACT. By H. P. Winsbury White, M.B., Ch.B., F.R.C.S., Assistant Urological Surgeon, St. Paul's Hospital for Genito-Urinary and Skin Diseases. Cloth. Price, $7. Pp. 344, with 183 illustrations. Philadelphia: P. Blakiston's Son & Company, 1929.

This book is the result of extensive experience with calculus disease. The chapters logically divide the subject matter into its important headings, and the discussion, while brief and in parts sketchy in character, emphasizes the essentials in all particulars. While not as large as a recent volume on the same subject, this book is of great value to the student and as a work of reference to the surgeon. The illustrations are of the highest grade and illuminate the text in a satisfactory manner. The boldface type beginning each paragraph is striking and quickly calls attention to the more important facts in each chapter. A valuable bibliography on urinary stone occupying more than seventy pages is appended. The book can be heartily recommended as a rather brief but excellent exposition of calculus disease.

LEHRBUCH DER HISTOLOGIE UND DER MIKROSKOPISCHEN ANATOMIE MIT BESONDERER BERÜCKSICHTIGUNG DES MENSCHLICHEN KÖRPERS. Von Prof. Dr. Ladislaus Szymonowicz. Sixth edition, edited by Dr. Ladislaus Szymonowicz and Dr. Rudolf Krause. Paper. Price, 36 marks. Pp. 590, with 408 illustrations. Leipzig: Curt Kabitzsch, 1930.

This edition appears with some additions to the fifth edition and with all the excellent colored illustrations. The discussion of the cell is adequate. From Rudolf Krause one might perhaps have expected a few words concerning the pitfalls in the interpretation of cytologic preparations. The presentation of the general histology and the minute anatomy is from the physiologic point of view and the reader is spared much detail that cannot be interpreted physiologically at present. In several instances a knowledge of American work would have added to the clarity of the discussions. The chapters on the spinal cord and the sense organs are to be particularly commended. Make-up and printing are worthy of the work, and the index is full and accurate.

THE BABY'S FIRST TWO YEARS. By Richard M. Smith, A.B., M.D., Sc.D., Assistant Professor of Child Hygiene, Harvard Medical School. Third edition. Cloth. Price, $1.75. Pp. 159, with illustrations. Boston: Houghton Mifflin Company, 1930.

During the last decade there has been a marked reduction in infant mortality, especially during the first two years of life. Not a small part of this reduction has been due to increasing knowledge of child care among mothers. Much progress has been made in infant feeding, and the artificially fed baby has much greater chance of surviving than ever in the past. Through such books as this, mothers have secured their education in baby care. It is clearly written and, in this edition, has been rewritten to conform to changing conceptions. The general suggestions in the second part will be found most helpful to mothers, especially the material given in the chapter on traveling with the baby. There are an abundance of books on the care of the baby during the first two years. They are fulfilling a definite purpose.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus und P. Uhlenhuth. Lieferung 39, Band III: Desinfektions- und Sterilisationslehre: 1, Allgemeiner und physikalischer Teil. Von Prof. Dr. H. Reichel; 2, Chemischer Teil. Von Prof. Dr. E. Bürgi und Prof. Dr. K. Laubenheimer. Milzbrand: Von Prof. Dr. G. Sobernheim. Abdominaltyphus. Von Prof. Dr. K. Baerthlein. Immunität bei Typhus. Von Prof. Dr. K. Baerthlein. Third edition. Paper. Price, 46 marks. Pp. 829-1376, with 25 illustrations. Jena: Gustav Fischer, 1929.

More than a third of this issue is taken up with two excellent articles on disinfection and sterilization, one dealing with the general and physical aspects, the other with the chemical side. Both are thoroughly documented. Reichel has adopted a curious method of abbreviating most French, Italian and English titles in his bibliography, while giving the German titles in extenso. The title of one article is set down: "The eff. of past. on bov. tbc.-b. aso." Sobernheim has a comprehensive article on anthrax in which we are spared nothing from Pollender and Davaine—or, for that matter, Ovid—down to our own times. There are thirteen text figures and two colored plates. The article on typhoid by Baerthlein is on a more modest scale, the important and complicated question of immunity in typhoid being dealt with, also by Baerthlein, in a separate paper. As would be expected from this author, the discussion of variation of the typhoid bacillus is admirably treated. It is a surprise to find the antiquated table of differentiation on page 1189. The special subdivision on immunity is full and critical.

THE HEALTH-CARE OF THE BABY: A HANDBOOK AND FEEDING GUIDE FOR PHYSICIANS, MOTHERS, AND NURSES. By Louis Fischer, M.D., Consulting Physician to the Willard Parker and Riverside Hospitals. Eighteenth edition. Cloth. Price, $1. Pp. 248, with illustrations. New York: Funk & Wagnalls Company, 1930.

In the eighteenth revised edition of this little book the article on diphtheria has been corrected and brought down to date. The material contains much practical advice of an elementary nature, and should prove, as it has in the past, most helpful to mothers and nurses.

UNIVERSITY OF IOWA STUDIES IN PSYCHOLOGY, No. 13. Edited by Christian A. Ruckmick. Volume XL, No. 1: Psychological Monographs. Edited by Raymond Dodge. (Whole No. 181, 1930.) Paper. Price, $3.25. Pp. 214, with 44 illustrations. Princeton, N. J.: Psychological Review Company, 1930.

In this volume is collected a series of studies made in the laboratories of the University of Iowa. Some of them are condensed from theses. In the present number, chief interest seems to lie in the questions of speech and speech disturbances. Thus, Fossler is concerned with disturbances in breathing during stuttering, Larson with measurements of musical talent, and Root and Wagner with tonal movements and control of the voice. It is found that there is no significant difference between stutterers and normal persons with reference to the amplitude of inspiration and expiration. Stutterers present from two to five more abnormal curves than do normal persons and about twice as many expirations interrupted by inspirations as do normal persons. It is apparent, therefore, that the rhythm of breathing may be greatly disturbed in stutterers, and it is not illogical to pay special attention to this aspect of speech production.

A COMPARATIVE STUDY OF THE APTITUDE OF THE HIGHER ANIMAL ORGANISM TO ACQUIRE IMMUNITY THROUGHOUT THE VITAL CYCLE, AND THE RELATION OF THIS APTITUDE TO HEREDITARY TRANSMISSION. By E. Grasset, M.D., Medical Serologist to the Institute. Paper. Pp. 173-190. Johannesburg: South African Institute for Medical Research, 1929.

PLAGUE STUDIES: I: BACTERIOPHAGE IN THE PROPHYLAXIS AND TREATMENT OF EXPERIMENTAL PLAGUE. II: MICROBIC DISSOCIATION OF B. PESTIS AND ITS IMPORTANCE IN CONNECTION WITH THE PREPARATION OF PLAGUE VACCINE AND SERUM. III. A VELD RODENT EPIZOOTIC DUE TO A PASTEURELLA OTHER THAN PASTEURELLA (BACILLUS) PESTIS. By J. H. Harvey Pirie, B.Sc., M.D., F.R.C.P.E., Bacteriologist and Pathologist. Research Division of the Institute. Paper. Pp. 195-230. Johannesburg: South African Institute for Medical Research, 1929.

These brief articles from the South African Institute for Medical Research embody the results of experimental work of the type usually given publicity through regular periodical channels. Grasset arrives at the conclusion that the embryonic tissue of birds and mammals does not possess the capacity of developing active immunity. While highly sensitive to toxic antigens (diphtheria toxin), the embryo manifests no antibody response. Pirie, in three short plague studies, dissents from d'Herelle's view that bacteriophage treatment is any more successful either prophylactically or therapeutically than the standard vaccines and serums. He believes that from the practical point of view only cultures of the "smooth" type should be employed in the preparation of plague vaccines and serums. He describes an epizootic among the gerbilles, small South African rodents, apparently caused by a pasteurella not of the plague bacillus type and believed to be a new species.

KONSTITUTIONSTYPEN DER KINDER. Von Dr. W. S. Krasusky. Mit einem Vorwort von Prof. Dr. E. Kretschmer. Paper. Price, 4.20 marks. Pp. 62, with 11 illustrations. Berlin: S. Karger, 1930.

Krasusky studies the constitutional types in childhood and attempts to apply Kretschmer's classic methods to this investigation. The author, like his recent predecessors, attempts to classify children according to their physique and character into certain definite groups. In this he is also somewhat influenced by Sigaud's classification: the respiratory type, the cerebral type, the muscular type and the digestive type. He is, however, particularly interested in arranging the groups according to Kretschmer. Krasusky found that the asthenic type with its schizothymic or split personality character occurred more frequently among girls than among boys. In about half of the preschool children examined, Krasusky thinks that he was able to determine the constitutional type, and he found a striking correspondence between physique and mental characteristics. The fat faced, chesty, well nourished group (pyknic type) were in excess over the thin faced, thin bodied, asthenic type. The author believes that a further study of constitutional types in children will be of importance in the formation of personality and in the training for social life. He also thinks that such a study will aid physicians and teachers in their contact with children. Whether the plan of labeling human beings so as to fit them into certain definite types will ever be practical remains to be elucidated.

Medicolegal

Susceptibility to Disease as a Compensable Injury

(Santini v. Levin (Conn.), 147 Atl. 680)

Santini was employed by Levin as a hod carrier. According to the finding of the compensation commissioner for the fifth district, Connecticut, he was disabled by "a cement dermatitis," Sept. 28, 1926. Levin and his insurer voluntarily agreed to pay Santini compensation according to law. His compensable injury continued until July 5, 1927, at which time the dermatitis was completely healed and the plaintiff entered the employment of a railroad company. In entering that employment, he accepted wages less than those he had been earning as a hod carrier with Levin, because medical experts advised him that a return to his occupation as hod carrier would cause the recurrence of dermatitis. April 30, 1928, Santini left the service of the railroad and began work for one Aloisi, as a hod carrier. When he entered Aloisi's service he had no disease, but on May 18, 1928, dermatitis again disabled him. The compensation commissioner made awards to Santini against both Levin and Aloisi, but the award against Aloisi is not involved in the present case. Levin appealed to the Supreme Court of Errors of Connecticut, from a judgment of the superior court dismissing his appeal and ratifying the compensation commissioner's award, which required Levin to pay Santini for partial incapacity from July 5, 1927, to April 30, 1928. During this period, according to the finding of the compensation commissioner, Santini was employed at wages less than his ordinary wages and had no "actual pathological dermatitis," but he was subject "to a susceptibility to a recurrence of the pathological dermatitis in event of exposure to lime." That susceptibility, said the commissioner, "was attributable in part to the prior exposure and to the actual pathological dermatitis incurred while in the employ of Levin."

Weakened resistance, said the Supreme Court, one form of which is susceptibility to disease, can never, by itself, result in a compensable injury. Santini's employer, Levin, claimed that Santini was not suffering from actual disability of any kind, but only from "a potential disability." But, said the court, Santini, when his employment began with Levin, had no disease; all he had was a susceptibility to a disease. He contracted that disease in Levin's employment. That disease, contracted in Levin's employment, was responsible in part for Santini's susceptibility to a recurrence of it. Thus, said the court, there is found a causal connection between the lessened wages Santini was forced to take and the susceptibility to a recurrence of the disease that he contracted in Levin's employment. The susceptibility itself may be said to have arisen in part out of that employment. There was no error in the judgment of the superior court sustaining the award of the compensation commissioner, allowing Santini compensation from Levin, based on the lessened wages Santini received while in the service of the railroad company.

Misbranding Drugs by Referring to Testimonials

(United States v. John J. Fulton Co. (U. S.), 33 Fed. (2d) 506)

Vendors of worthless drugs cannot escape responsibility for misstatements concerning them by hiding behind the phrase, "the doctors say." The defendant in this case shipped a certain drug in interstate commerce, with accompanying labels, wrappers and circulars. The United States filed a libel to procure the condemnation of a shipment of it, charging that it was misbranded, in violation of the Federal Food and Drugs Act, paragraph 3, section 8, which declares that a drug shall be deemed to be misbranded, "if its package or label shall bear or contain any statement, design, or device regarding the curative or therapeutic effect of such article or any of the ingredients or substances contained therein, which is false and fraudulent." On the ground that nowhere in any label, wrapper or attending circular was any direct statement or claim made that the drug possessed curative or therapeutic value, the defendant filed an exception to the government's libel, alleging

that it failed to state facts sufficient to constitute a cause of action. The district court sustained the exception and entered a judgment dismissing the libel. The United States thereupon appealed to the Circuit Court of Appeals, Ninth Circuit.

While no direct statement or representation that the drug was of curative or therapeutic value was made in any label, wrapper or circular, the statement was made, "We have received many letters from physicians reporting," followed by what was represented to be the substance of such "reports." The defendants contended that the fact that they were in possession of such letters or reports as were referred to constituted a complete defense, no matter what might be the character of the drug. Admittedly, the labels, wrappers and circulars would tend to engender a belief in persons suffering from diabetes or Bright's disease that the use of the drug would likely afford them relief, and, said the Circuit Court of Appeals, unless we discredit the mental competency of the proprietors of this drug, such must be presumed to have been their intent and expectation. If, however, as is charged, the drug is worthless, the proprietors cannot escape responsibility by hiding behind the phrase "the doctors say." Couched in such language, the printed matter undoubtedly makes a more persuasive appeal to the credulity of sufferers than if the representations thus implied were made directly on the authority of the proprietors alone. For that reason they are not less, but more, obnoxious to the law. The charge is that these representations are not only false, but fraudulent, thus implying bad faith on the part of the proprietors of the seized drug. The principle involved is set forth, said the court, in *United States* v. *95 Barrels of Vinegar*, 265 U. S. 438, 44 S. Ct. 529, 68 L. Ed. 1094:

> . . . Deception may result from the use of statements not technically false or which may be literally true. The aim of the statute is to prevent that resulting from indirection and ambiguity, as well as from statements which are false. It is not difficult to choose statements, designs and devices which will not deceive. Those which are ambiguous and liable to mislead should be read favorably to the accomplishment of the purpose of the act.

The judgment of the district court in favor of the proprietor of the seized drugs was therefore reversed.

Fracture of Femur, Myocarditis and Death

(Green v. Industrial Commission (Ill.), 169 N. E. 202)

Robert Green was 71 years old. He was 5 feet 10 inches tall and weighed about 200 pounds. He had been in the service of his employer for thirty-two years, had never been sick and had worked regularly. Feb. 21, 1927, in the course of his employment, he suffered a compound comminuted fracture of the left femur, just above the knee, and was immediately taken to a hospital for treatment. Examination on the following day showed hyaline casts in the urine and some swelling of the lower extremities. May 10, he was around on crutches. He left the hospital, May 30. After the middle of July, he was able to move around with the use of a cane. July 20, however, he again entered the hospital, and then it was found that he was suffering from a carcinoma of the prostate gland. He was unable to pass urine. His decline was rapid, and he died, Aug. 29, 1927, weighing only 110 pounds. A postmortem examination disclosed marked arteriosclerosis, with coronary sclerosis; aortitis; some degenerative processes in the liver, as indicated by the chronic passive hyperemia of the liver; chronic interstitial nephritis; cysts in both kidneys, and a carcinoma of the prostate. These conditions, it was testified, contributed to the degeneration of the heart muscles, which was the immediate cause of death. Green's widow sought compensation, alleging that death resulted from the injury received, Feb. 21, 1927. The industrial commission refused her claim and was sustained by the circuit court of Sangamon County. The widow thereupon appealed to the Supreme Court of Illinois.

On behalf of the widow, it was claimed that Green was apparently in good health before his injury; that when he was compelled as a result of the injury to lie in bed, he was unable to empty his bladder completely; that the residual urine set up an infection, causing urinary sepsis, and that the urinary sepsis, together with degenerative changes brought about by confinement to bed as a result of the injury, caused death. The medical testimony was conflicting. Four physicians testified that they could see no connection between the injury to the leg and the carcinoma of the prostate, which resulted in the retention of the urine and death. One physician testified that a man 71 years old, suffering from shock, placed in bed in a condition of inactivity, would be subject to a general deterioration; that he would be unable to empty his bladder, and that the residual urine, becoming infected, would set up a cystitis. Another attributed death to the lowered vitality and the degenerative changes that set in during the patient's confinement, while flat on his back in the hospital. A third physician testified that he saw no indication of the retention of urine during Green's first stay in the hospital and he believed that lying flat in bed would help the prostatic condition. A fourth testified that the patient's confinement would help the nephritis and myocarditis but would have no effect on the prostatitis. Another physician thought that the patient had had residual urine for months or a year or two before the acute retention of urine occurred; that the muscles of a man 71 years old with an enlarged prostate gland, gradually weakened, so that it would not be so easy for him to urinate lying down, but he did not think that this made any difference from a practical point of view. One physician declined to say what effect Green's confinement in bed had on his general systemic condition.

With this conflicting evidence before it, the Supreme Court concluded that the preponderance of the medical evidence led to the conclusion that the conditions shown by the autopsy existed prior to the accident and that lying quiet in bed tended to alleviate those conditions rather than to aggravate them. The prosatitis had probably existed for a considerable time before the injury. No urinary trouble was manifested during Green's confinement. He made a good recovery from the injury and within a short time his broken bone united and he got around on crutches. He had been making normal progress toward complete recovery for two months after his return from the hospital before he was compelled to return on account of conditions resulting from the prostatitis. The finding of the industrial commission that Green's death did not result from the injury to his leg was, in the opinion of the Supreme Court, justified by the evidence. The judgment of the circuit court affirming the finding of the industrial commission was therefore affirmed.

Society Proceedings

COMING MEETINGS

American Medical Association, Detroit, June 23-27. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of Goiter, Seattle, July 10-12. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, June 23-24. Dr. V. S. Cheney, Armour and Company, 43d Street and Racine Avenue, Chicago, Secretary.

American Association of Medical Milk Commissions, Detroit, June 23-24. Dr. Harris Moak, 360 Park Place, Brooklyn, New York, Secretary.

American Heart Association, Detroit, June 24. Dr. I. C. Riggin, 370 Seventh Avenue, New York, Executive Secretary.

American Physiotherapy Association, Detroit, June 23-24. Miss C. H. Ballard, St. Francis Hospital, San Francisco, Secretary.

American Proctologic Society, Buffalo, New York, June 22-24. Dr. Curtice Rosser, Medical Arts Building, Dallas, Texas, Secretary.

American Radium Society, Detroit, June 23-24. Dr. G. W. Grier, 500 Penn Avenue, Pittsburgh, Secretary.

American Society of Clinical Pathologists, Detroit, June 20-23. Dr. H. J. Corper, Metropolitan Building, Denver, Secretary.

Association for Research in Ophthalmology, Detroit, June 24. Dr. Conrad Berens, 30 East 40th Street, New York, Secretary.

Association for the Study of Allergy, Detroit, June 23-24. Dr. Warren T. Vaughan, 118 East Franklin Street, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Detroit, June 23. Dr. F. M. Pottenger, Monrovia, Calif., Secretary.

Association of American Teachers of the Diseases of Children, Detroit, June 24. Dr. Ralph M. Tyson, 334 South 21st Street, Philadelphia, Secretary.

Idaho State Medical Association, Coeur d'Alene, June 27-28. Dr. Joseph N. Davis, Kimberly, Secretary.

Medical Women's National Association, Detroit, June 22-24. Dr. Elizabeth Kittredge, 3906 McKinley Street, Washington, D. C., Secretary.

Minnesota State Medical Association, Duluth, July 14-16. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Montana, Medical Association of, Butte, June 30. Dr. E. G. Balsam, Box 88, Billings, Secretary.

Pacific Northwest Medical Association, Butte, Montana, July 1-3. Dr. Frederick Epplen, 639 Stimson Building, Seattle, Secretary.

Wyoming State Medical Society, Sheridan, July 15-16. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

11: 535-746 (May) 1930

*Infant Diarrhea and Enteritis and Climate. London, 1876-1927. W. M. Gafafer, Baltimore.—p. 535.

Corrected Average Attack Rate from Measles Among City Children. A. W. Hedrich, Baltimore.—p. 576.

Municipal Expenditures for Public Health in Cities of United States of 70,000 Population and Over for Year 1923 in Relation to Infant Mortality Rates. R. A. Bolt, Cleveland.—p. 601.

Aspects of Epidemiology of Infestation with Trichuris and Ascaris as Revealed in Study at Hospitals for Insane and Home for Mentally Defective Children in State of Alabama. F. C. Caldwell, E. L. Caldwell and G. E. Davis, Andalusia, Ala.—p. 619.

Behavior of Certain Filtrable Viruses When Subjected to Cataphoresis. C. V. Natarajan and R. R. Hyde, Baltimore.—p. 652.

Immunologic Studies of Colds and Influenza: I. Complement Fixation in Influenza with Hemophilus Influenzae and Bacterium Pneumosintes. G. H. Bailey and M. S. Shorb, Baltimore.—p. 668.

Id.: II. Biologic Relationships of Influenza Bacillus Group of Organisms as Shown by Complement Fixation. G. H. Bailey and M. S. Shorb, Baltimore.—p. 680.

Anopheline Survey of State of Mississippi. M. Perez, New York.—p. 696.

Classification of Certain Anopheles of Nyssorhynchus Group by Immediate Examination of Male Genitalia. R. B. Hill, New York.—p. 711.

Cytologic Study of Oxymonas, a Flagellate, Including Descriptions of New Species. C. C. Zeliff, Ithaca, N. Y.—p. 714.

Kirbyella, Zeteki, New Genus and Species of Protozoa from Kalotermes (Calcaritermes) Brevicollis from Canal Zone. C. C. Zeliff, Ithaca, N. Y.—p. 740.

Infant Diarrhea and Enteritis and Climate, London, 1876-1927.—Zero order and partial correlation coefficients involving deviations from normal of the weekly diarrhea and enteritis infant mortality rates, London, 1876-1927, and the deviations from normal of temperature range, mean temperature, humidity, movement of air, and rainfall have been determined by Gafafer. His results show that in the summer when the temperature range or mean temperature rises above (or falls below) its ordinary summer level there is likely to be a rise (or fall) in the diarrhea and enteritis infant mortality rate. They also show that in the summer, when the humidity falls below (or rises above) its ordinary summer level, there is likely to be a rise (or fall) in the diarrhea and enteritis infant mortality rate. Variations in movement of air or of rainfall are probably not associated with variations in the diarrhea and enteritis infant mortality rate.

Archives of Pathology, Chicago

9: 967-1140 (May) 1930

*Effects of High Voltage Cathode Rays on Germinal Epithelium of Rat. V. C. Jacobsen, Albany, N. Y.—p. 967.

*Osteogenesis Imperfecta Congenita. M. Weber, San Francisco.—p. 984.

Adenofibrosarcoma of Breast: Fifteen Cases. L. H. Sophian, New York.—p. 1007.

*Thymus Gland in Lymphatic Leukemia. H. M. Margolis, Rochester, Minn.—p. 1015.

Serum Meningitis. D. Goldman, Cincinnati.—p. 1027.

Cerebrospinal and Ocular Fluids in Experimental Jaundice in Dogs. H. L. Segal and J. Glaser, Rochester, N. Y.—p. 1038.

Evidence Furnished by Biochemistry and Immunology on Biologic Evolution. H. G. Wells, Chicago.—p. 1044.

Effects of High Voltage Cathode Rays on Germinal Epithelium of Rat.—The effects of cathode rays of voltages of 200,000 and 250,000, with a current of 1 ma., on the germinal epithelium were studied by Jacobsen. The observations made are offered as further biologic evidence that the effects of roentgen rays are not due primarily to the roentgen rays but to the electrons or cathode rays set free in the tissues.

Osteogenesis Imperfecta Congenita.—Investigations made on a 2 day old girl with osteogenesis imperfecta, and a study of the literature, have convinced Weber that in osteogenesis imperfecta the entire bone system has been arrested in the stage of "nucleus formation"; i. e., the bone actually present consists of fiber bone which, forming the foundation of lamellar bone, must be sharply differentiated morphologically from the latter. This fiber bone is of inferior quality and shows a relative increase in quantity. The cartilage is evidently normal and opened up in a normal way. Thus, osteogenesis imperfecta must be regarded as a congenital primary generalized arrested malformation of the bone-building system which leads to a "relative displacement to the left" of the bone picture. Presumably, the disease is traceable as far back as the endothelial cells of the blood vessels and the composition of the intercellular substance. Whether a vitium primae formationis or a secondary disturbance must be held responsible could not be determined in the case reported. The fractures are only a local secondary mechanical result of the primary disturbance of the bone system in general. They reveal the picture of osteodystrophia fibrosa, which the author has designated previously as "irritation of the bone-building system leading to an absolute displacement to the left of the bone picture."

Thymus Gland in Lymphatic Leukemia.—In only four of thirty-two cases of leukemia did Margolis find an enlarged thymus. The predominant tendency in this disease seems to be in the direction of involution. Margolis says that when thymic enlargement does occur in leukemia it usually parallels the degree of infiltration in other organs. Such enlargement of the thymus gland is not due to hyperplasia of the small thymic cells but is due to infiltration by lymphocytes; the process is identical with that leading to infiltration of other nonlymphoid organs. The reaction of the small thymic cells in lymphatic leukemia differs from that of the blood lymphocytes and suggests a difference in the biologic nature of the small thymic cells and the blood lymphocytes. A different histogenetic source of the small thymic cells from that of the blood lymphocytes may be inferred.

Delaware State Medical Journal, Wilmington

2: 59-74 (April) 1930

Present Status of Toxemias of Pregnancy. E. A. Schumann, Philadelphia.—p. 59.

Renal Anomalies. B. S. Vallett, Wilmington.—p. 64.

Journal of Comparative Psychology, Baltimore

10: 97-236 (April) 1930

Systolic Blood Pressure Fluctuations with Sex, Anger and Fear. J. C. Scott, Philadelphia.—p. 97.

Reasoning in Humans: I. On Direction. N. R. F. Maier, Chicago.—p. 115.

Visual Pattern Discrimination in White Rat. N. L. Munn.—p. 145.

Alimentary Canal of Man: VI. Emotional Interference in Gastric Behavior Patterns. T. W. Todd and M. E. Rowlands, Cleveland.—p. 167.

Variations in Psychomotor Efficiency in Diabetic with Changes in Blood Sugar Level. J. F. Dashiell, Chapel Hill, N. C.—p. 189.

Apparatus for Studying Acuity of Proprioceptive Senses in Rats. L. E. Drake, Minneapolis.—p. 199.

Analysis of Thinking Reactions of White and Negro Children. L. H. Lanier, Nashville, Tenn.—p. 207.

Upper Limit of Hearing in Cat. E. G. Wever, Princeton, N. J.—p. 221.

Quantitative Experiment on Dr. K. Dunlap's Revision of Fundamental Law of Habit Formation. G. Wakeham, Boulder, Colo.—p. 235.

Journal of Immunology, Baltimore

18: 257-330 (April) 1930

Toxins of Hemolytic Streptococci: IV. Comparison of Specific Toxin-True Scarlatinal Toxin with Purified Preparations Reported by Other Authors. K. Ando and H. Nishimura, Dairen.—p. 257.

Id.: V. Dick Test and Allergic Skin Reactions to Streptococcus Nucleoproteins. K. Ando and K. Ozaki, Dairen.—p. 267.

Specificity of Tuberculin Type of Sensitiveness Produced with Different Protein Substances of Eggwhite. L. Dienes, Asheville, N. C.—p. 279.

Antigenic Substances of Tubercle Bacillus: V. Antigenic Substances of Synthetic Culture Medium. L. Dienes and E. W. Schoenheit, Asheville, N. C.—p. 285.

Influence of Age on Antibody Formation. J. Freund, Philadelphia.—p. 315.

Distribution of Antibodies in Serum and Organs of Rabbits: VI. Antibody Content of Bile of Immunized Rabbits. J. Freund and H. J. Henderson, Philadelphia.—p. 325.

Journal of Industrial Hygiene, Baltimore

12: 123-168 (April) 1930

Silica Dust Hazard in Granite Cutting Industry. L. R. Thompson and R. H. Britten.—p. 123.
Rational Expression for Wet Kata Cooling Power. W. S. Weeks, Berkeley, Calif.—p. 148.
Quantitative Measurement of Human Efficiency Under Factory Conditions. O. S. Lovekin, Boston.—p. 153.

Journal of Urology, Baltimore

23: 493-609 (May) 1930

*Hydronephrosis Due to Obstruction at Ureteropelvic Junction. A. R. Stevens, New York.—p. 493.
Renal Tuberculosis with Calcification. J. L. Crenshaw, Rochester, Minn. —p. 515.
*Perirenal Hematoma Primary with Polycythemia: Case. D. W. MacKenzie, Montreal.—p. 535.
Perirenal Lipoma with Generalized Abdominal Lipomatosis. E. G. Crabtree, Boston.—p. 545.
Congenital Solitary Kidney: Two Cases. R. C. Graves, Boston.—p. 555.
Urography: Indications and Contraindications. N. P. Rathbun and H. L. Wehrbein, New York.—p. 561.
Congenital Valves of Posterior Urethra: Case. A. Randall.—p. 567.

Hydronephrosis Due to Obstruction at Ureteropelvic Junction.—Stevens reports twenty-three cases of hydronephrosis due to obstruction at the ureteropelvic junction. All the patients were subjected to operation; there were no deaths. The series includes thirteen patients with obstructions due to anomalous renal vessels and the accompanying fibrous bands: ten required nephrectomy, while three were relieved by ligating and cutting the vessels, dissection of adhesions, and nephropexy. There were four instances of high obstructions due to peripelvic adhesions and scar; one due to stenosis of the ureteropelvic opening; one due to a high ureteral implantation; one with a fine ureteral lumen of unknown etiology; one with double ureters; and two due to neoplasm of the pelvis. The possibilities of damage to the corresponding kidney are indicated by the large number of nephrectomies required. The importance of early diagnosis is evident, as most of the obstructions found may be thoroughly relieved by surgery.

Perirenal Hematoma Primary with Polycythemia.—MacKenzie asserts that his case of acute spontaneous perirenal hemorrhage, occurring in a male suffering from polycythemia, is the first to be recorded. The kidney was removed within a few hours. The patient is alive and well, although his red cell count is still high.

Laryngoscope, St. Louis

40: 245-324 (April) 1930

Mastoiditis: Résumé of 644 Cases. G. M. Coates, M. S. Ersner and A. H. Persky, Philadelphia.—p. 245.
Bone Conduction. B. M. Becker, New York.—p. 258.
Physiology and Clinical Examination of Static Labyrinth. J. D. Whitham, New York.—p. 265.
Persistent Nasal Hemorrhage Treated with Radium. J. C. Scal, New York.—p. 271.
Hay-Fever: Surgical Conquest. H. Byrd, Detroit.—p. 279.
End-Results of Tonsillectomy: Sinus Infection in Adults. C. W. Pond, Pocatello, Idaho.—p. 286.
Large Tonsillolith: Case. H. S. Goodman, Cary, Miss.—p. 290.
Pemphigus with Throat Lesions: Secondary Infection with Vincent's Organisms. L. Schwartz, Jr., New York.—p. 291.
Tongue Suspender. I. R. Smith, Toronto.—p. 298.
Xanthoma of Larynx. H. A. Schatz, Philadelphia.—p. 300.
Stenosis of Larynx and Trachea. H. A. Beal, Kansas City, Mo.—p. 302.

Medical Journal & Record, New York

131: 441-492 (May 7) 1930

Unrecognized Cases of Deficiency Polyneuritis (Avitaminosis?). I. S. Wechsler, New York.—p. 441.
Lymphatic Leukemia with Severe Pains in Joints. B. P. Seward, Roanoke, Va.—p. 444.
Few Reflections on Significance of Term Rickets. E. Pritchard, London. p. 446.
Constitutional Allergic Reactions. C. A. Spivacke, New York.—p. 447.
Microscopic Diagnosis of Early Carcinoma. S. P. Reimann, Philadelphia.—p. 449.
Aspects of Mechanism of Labor. A. J. Rongy, New York.—p. 451.
Missing Teeth and Pregnancy. W. Lintz, New York.—p. 452.
Puerperal Death Rate, Birth Control and Marriage Advice Stations. S. A. Knopf, New York.—p. 455.
Kidney Function. H. A. Ellis, London.—p. 459.
Therapeutic Points in Urologic Procedures. H. A. Hare, Philadelphia. —p. 464.
Much Neglected Prostate. C. C. Kimball, New York.—p. 466.
Ureteral Calculus Simulating Intestinal Obstruction. I. R. Jankelson, Boston.—p. 468.
Nephrolithiasis and Azotemia. C. J. Finck, Vittel, France.—p. 470.
Concerning Possibility of Infection of Latent Syphilis, as Proved by Demonstration of Spirochaeta Pallida in Special Cases. G. Kertész, Ujpest, Hungary.—p. 472.
Apparatus for Transfusion of Whole Blood. M. Dogliotti, Turin, Italy. —p. 475.
New Needle Electrode. E. L. Stern, New York.—p. 476.
New Instrument in Performing Salpingohysterography. L. J. Friedman, New York.—p. 477.
Medieval Stories About Father of Medicine. W. R. Riddell, Toronto. —p. 478.

Minnesota Medicine, St. Paul

13: 281-367 (May) 1930

Manifestations of Hypothyroidism in Limited Fields of Medical Practice. C. A. McKinlay, Minneapolis.—p. 281.
Tibial Fractures into Knee Joint. A. N. Collins, Duluth.—p. 285.
*Use of Sulphocyanates in Treatment of Hypertension. J. F. Borg, St. Paul.—p. 293.
*Pernicious Anemia in Young. K. W. Anderson, Minneapolis.—p. 297.
Congenital Syphilis. R. R. Sullivan, Duluth.—p. 302.
Plea for Radical Treatment of Incomplete Abortion. A. G. Schulze, St. Paul.—p. 310.
*Corbus' Disease: Erosive or Gangrenous Balanitis. A. C. Abbott and G. Ryan, Winnipeg, Manitoba.—p. 315.
Vaginal Sterilization with Hexylresorcinal or Mercurochrome. D. H. Bessesen, Minneapolis.—p. 318.
When Is Hyperplastic Sinus and What? and Its Parallel, the Mucoid Ear. W. W. Lewis, St. Paul.—p. 322.
*Poisoning from Cinchophen. L. J. Stacy and F. R. Vanzant, Rochester. —p. 327.
Sodium Amytal in Cesarean Section: Case. J. R. Sturre, Minneapolis. —p. 328.

Use of Thiocyanates in Treatment of Hypertension.—In a group of twenty-four patients treated by Borg with sodium or potassium thiocyanate, from 2 to 10 grains (0.13 to 0.65 Gm.) three times daily for from one to four weeks, twenty-two showed drops in the systolic pressure varying from 15 to 150 mm. of mercury, the majority obtaining substantial reductions. Only two of the groups failed to show an average systolic pressure reduction, one of these being a patient with tertiary syphilis who later showed a substantial reduction on antisyphilitic therapy, and the other a man with severe kidney injury who could not tolerate the minimal dose. Nine patients, however, had no average diastolic reduction, and there were no particular factors with which this could be associated. The maximal drop in pressure was recorded at varying periods after the drug had been started in different patients, some showing it at three days and others requiring a month, the average being about two weeks. Those requiring the longer time usually took larger doses, the step-up in dosage being made at seven to ten day intervals. Once the lowered pressure was maintained for about a week, the drug was discontinued and the lowered pressure was found to persist from a few days to two months. Those who were followed sufficiently long were usually found to respond again when medication was resumed. Thirteen developed unpleasant complications. With the onset of such symptoms the drug was discontinued, and after a few days all were relieved of these effects. Toxic psychoses developed in four patients, with disorientation, hallucinations of sight and hearing, mania, confusion, and ideas of persecution, singly or in combination. They lasted only from five to seven days after the drug was stopped. They were all in patients to whom it had been necessary to give large doses to obtain a desirable reduction. As a group they showed the greatest lowering of pressure of the series. It was interesting also that this group maintained a considerable longer period of lowered tension after the cessation of symptoms, without medication, than the rest, all being much more comfortable and free from symptoms for three weeks or longer.

Pernicious Anemia in Young.—Two cases are reported by Anderson, the patients being girls, aged 15 and 18, respectively. The appearance and reaction of the red cells were fully characteristic in both cases. The "pernicious anemia neutrophils," so highly valued as a factor in diagnosis by morphologists but accepted with a certain hesitancy by the clinician, were present in both cases. The reaction of the neutrophils toward immaturity was of special interest in the younger patient. Clinically striking features in the younger patient were not only her early gray hair but also her generally early development, with a body frame and a development of fat on the

breasts and hips which usually is not present until from fifteen to twenty-five years later. Achlorhydria was present in both patients. Subjective neurologic symptoms were recorded in both patients, but in both objective neurologic signs were missing. One patient is alive and making progress on liver extract treatment. The other is dead.

Corbus' Disease: Erosive or Gangrenous Balanitis.—In one of the two cases reported by Abbott and Ryan, the original lesion in the genitalia gave rise to secondary infection of the lungs and mediastinum.

Poisoning from Cinchophen.—Stacy and Vanzant report the case of a woman, aged 52, who had an epithelioma of the cervix of the uterus which extended onto the posterior vaginal wall. Radium treatments were given and a total of 3,500 milligram hours was used in five doses at intervals of a few days. Because of severe inflammatory reaction in the pelvis, treatment was discontinued. Subsequently the reaction subsided, the vaginal discharge and bleeding stopped, and the patient's health seemed excellent. The patient returned eight months later for observation. She felt well, and examination revealed nothing of significance save moderate hypertension. There was no evidence of any local activity of the malignant condition. From 1923 to 1929 the patient enjoyed excellent health. During the summer of 1929 she suffered with neuritic pains in the right thigh, over the course and distribution of the sciatic nerve. Because a friend had found cinchophen effective in relieving pain, the patient started taking the drug and for six weeks she took from one to three tablets of cinchophen daily. She finally discontinued the medicine because of the appearance of nausea and vomiting, which developed a month after she had begun to take the drug. A week after she had stopped taking cinchophen, jaundice appeared suddenly, concomitantly with an attack of diarrhea which had lasted only a day. The jaundice was intense from the beginning and did not fluctuate. There was no purpura or pruritus. The patient was given a diet high in carbohydrate, calcium lactate in large doses by mouth, calcium chloride, and solution of dextrose intravenously, both with and without insulin, but her condition grew steadily worse. She died on the ninth day, sixteen days after the onset of the jaundice, with terminal hyperpyrexia and signs of bronchopneumonia. At necropsy, the liver was found to weigh only 903 Gm., and it showed the typical gross and microscopic picture of acute yellow atrophy. Evidence of a malignant condition was not found on section of the uterus, cervix or vagina, but there was an increase in the fibrous connective tissue compatible with the usual after-results of radium irradiation. There was a small, irregular mass in the right broad ligament, involving the right ovary, which had completely obstructed the ureter and produced right hydronephrosis. Section of the ovary revealed a hyaline necrotic mass, with regions of calcification, occasional epithelial pearls and a few mitotic figures. However, in that portion of the mass nearest the pelvic wall, there were many mitotic figures, indicating active malignant growth.

New England Journal of Medicine, Boston

202: 843-890 (May 1) 1930

Medical Ethics. S. B. Woodward, Worcester, Mass.—p. 843.
*Treatment of Acute Empyema Thoracis in Children. H. W. Hudson, Boston.—p. 853.
Service for Meningococcic Meningitis. J. B. Neal, New York.—p. 859.
*Mikulicz's Syndrome with Chronic Lymphatic Leukemia. S. N. Rowe, Ann Arbor, Mich.—p. 863.
Contraceptive Methods: Types Recommended by Nine British Birth Control Clinics. N. E. Himes, Cambridge, Mass.—p. 866.

Treatment of Acute Empyema Thoracis in Children.—The results of operation in 86 cases of acute empyema are presented by Hudson. There were 11 deaths, a mortality of 12.7 per cent. In 32 cases, intercostal drainage gave a mortality of 18.7 per cent (6 deaths); in 54 cases of rib resection the mortality was 9.2 per cent (5 deaths). The pneumococcus was the cause of the disease in 52 cases; the streptococcus in 16 cases, the staphylococcus in 6 cases, and in 5 cases a mixed culture was present. *Bacillus influenzae* was found in only 1 case. The pneumococcus cases gave the lowest mortality, 11.5 per cent; the mixed cases the highest, 20 per cent; the streptococcus cases gave a mortality of 18.7 per cent and the staphylococcus of 16.6 per cent. That the age of the patient and type of infecting organism are factors of major importance in determining mortality rates is again demonstrated. The value of delaying operation until the metapneumonic period is reiterated. Sixty-two of seventy-five patients discharged living were followed. One patient had a chronic empyema, the sixty-one were well. The author concludes that rib resection for empyema in children, as a primary operation in selected cases, or preceded by repeated aspiration or intercostal closed drainage during the synpneumonic stage, is a valuable therapeutic procedure.

Mikulicz's Syndrome with Chronic Lymphatic Leukemia.—A case of Mikulicz's syndrome with chronic lymphatic leukemia is reported and the literature referring to this type of Mikulicz's syndrome is reviewed and summarized by Rowe. The importance of early recognition of these cases on the basis of (1) painless, nontender, bilateral enlargement of the salivary and lacrimal glands, (2) an elevated white blood cell count, (3) enlargement of the liver and spleen, and (4) generalized swelling of the lymph glands is stressed. The author's experience demonstrates the efficacy of direct irradiation of the salivary and lacrimal glands in relieving severe symptoms.

Radiology, St. Paul

14: 445-550 (May) 1930

*Hodgkin's Disease with Bone and Skeletal Muscle Involvement. I. H. Lockwood, E. T. Johnson and F. C. Narr, Kansas City, Mo.—p. 445.
Safeguarding Storage of Photographic, Motion Picture and Roentgen Films. C. R. Brown, Washington, D. C.—p. 454.
Factors of Error in Roentgenologic Diagnosis of Diseases of Colon. H. M. Weber, Rochester, Minn.—p. 460.
Chemical Method for Measurement of Quantity of Radiation. E. H. Quimby and H. R. Downes, New York.—p. 468.
*Roentgen Diagnosis of Duodenal Ulcer. L. H. Garland, San Francisco. —p. 482.
Persistent Congenital Atelectasis. C. B. Rose, Chicago.—p. 488.
Positive Sign of Extensive Destruction of Mastoid of Infants. A. Granger, New Orleans.—p. 495.
Hypoparathyroidism as Complication of Thyroid Surgery. O. M. Walter, Chicago.—p. 504.
Diverticula of Esophagus. E. L. Jenkinson, Chicago.—p. 508.

Hodgkin's Disease with Bone and Skeletal Muscle Involvement.—A case of Hodgkin's disease is presented by Lockwood et al. in a boy, aged 15, whose first symptom was shingles and whose presenting symptom on admission was backache. At this time a roentgenogram revealed definite bone destruction in the first four lumbar vertebrae, the ilium and the femurs, although six months previously there had been no definite changes in these structures. Biopsy established the diagnosis of Hodgkin's disease. The course was one of increasing severity, with bone destruction of the dorsal and lumbar vertebrae, ilium and femurs, and involvement of all lymph nodes, the lungs, liver and skeletal muscles.

Roentgen Diagnosis of Duodenal Ulcer.—Garland asserts that in cases in which the roentgen reports are positive but clinical evidence of ulcer is lacking, if there is (1) a constant classic deformity of the Akerlund type, it is probable that the patient has a healed duodenal ulcer, with scarring of the bulb, or (2) a constant "average" irregular deformity, the possibilities include healed duodenal ulcer, periduodenal adhesions, peristalsis of the bulb or reflex spasm (due to cholecystitis, appendicitis or gastric lesions). Broster, among others, notes that clinically diagnosed duodenal ulcer not rarely turns out at operation to be gastric carcinoma, an error most commonly due to mistaking the true pylorus. In cases with negative roentgen observations but strongly suggestive clinical symptoms, the absence of deformity does not exclude ulcer if the symptoms are acute or recent; but in the presence of chronic symptoms, duodenal ulcer is definitely excluded in all likelihood.

Southern Medical Journal, Birmingham, Ala.

23: 371-478 (May) 1930

*Patients Suffering from Paralysis Due to Drinking Jamaica Ginger. C. R. Bennett, Meridian, Miss.—p. 371.
*Jamaica Ginger Paralysis. S. Harris, Jr., Birmingham, Ala.—p. 375.
*Nature and Treatment of Cardiac Fatigue. T. R. Harrison, J. A. Calhoun and C. Pilcher, Nashville, Tenn.—p. 381.

Injection Method of Treating Varicose Veins: Reasons for Popularity. B. M. Bernheim, Baltimore.—p. 386.
*Management of Eclampsia in Negro Race. C. B. Upshaw, Atlanta, Ga. —p. 388.
*Cesarean Section Under Spinal Anesthesia in Late Toxemias of Pregnancy. H. W. Johnson and R. A. Johnston, Houston, Texas.—p. 390.
Method for Determining Life Duration of Erythrocyte: II. Rate of Red Cell Production After Hemorrhage. P. Eaton and F. L. Damren, Augusta, Ga.—p. 395.
Chronic Hypoglycemia. H. M. Winans, Dallas, Texas.—p. 402.
Relationship Between Mind and Brain in Light of Epidemic Encephalitis. F. Kennedy, New York.—p. 406.
Traumatic Rupture of Pancreas with Secondary Fistula: Spontaneous Recovery. E. B. Maxwell, Miami, Fla.—p. 409.
Pelvic Endometriosis: Relative Merits of Various Methods of Treatment. C. Panettiere, Miami Beach, Fla.—p. 411.
Malignant Hypertension, Critique on Nature of Hypertension. W. M. Yater, Washington, D. C.—p. 413.
*Recent Developments in Control of Malaria. W. E. Deeks, New York. —p. 417.
*Administration of Quinine by Rectum in Treatment of Malaria. K. P. A. Taylor, Quirigua, Guatemala.—p. 420.
Malaria and Hookworm in Venezuela. J. B. Ascanio-Rodriguez, Caracas, Venezuela.—p. 426.
Hookworm and Malaria. H. Hanson, Jacksonville, Fla.—p. 426.
Malaria Control by Use of Paris Green: County-Wide Work in Dougherty County, Georgia. T. H. D. Griffitts, Albany, Ga.—p. 428.
Malaria Problem of West Tennessee. H. E. Meleney and E. L. Bishop, Nashville, Tenn., and F. L. Roberts, Trenton, Tenn.—p. 435.
Malaria Survey and Control Methods on Lake Murray, Columbia, S. C. L. T. Coggeshall, Columbia, S. C.—p. 442.
Malaria and Anopheles in Philippines. W. V. King, Mound, La.—p. 445.
Malaria in Porto Rico in Relation to Cultivation of Sugar Cane. W. C. Earle, New York.—p. 449.
Malaria Control in Haiti. S. S. Cook, Port-au-Prince, Haiti.—p. 454.
Malaria in Haiti. F. L. Hoffman, Wellesley Hills, Mass.—p. 459.
Malaria Control in Alabama, 1928. S. Graves, Montgomery, Ala.—p. 462.
Malaria Control in Georgia. L. M. Clarkson, Atlanta, Ga.—p. 462.
Malaria Control in Mississippi During 1929. M. F. Boyd, Jackson, Miss.—p. 463.
Malaria Control Work in Missouri, 1929. W. S. Petty, Jefferson City, Mo.—p. 464.
Malaria Control Activities in North Carolina. C. O. Laughinghouse, Raleigh, N. C.—p. 465.
Malaria Activities in South Carolina. A. E. Legare, Columbia, S. C. —p. 465.
Malaria Control Activities in Tennessee, 1929. E. L. Bishop, Nashville, Tenn.—p. 466.
Malaria in Virginia. H. G. Grant, Richmond, Va.—p. 467.
Malaria Work. J. A. Ferrell, New York.—p. 468.
Field Investigations of Malaria. E. R. Coffey, Richmond, Va.—p. 468.
Aims and Objectives of Gulf and South Atlantic Antimosquito Congress. H. T. Hartwell, Mobile, Ala.—p. 468.

Patients Suffering from Paralysis Due to Drinking Jamaica Ginger.—A rather widespread epidemic of a somewhat unusual type of multiple peripheral paralysis attributed to the drinking of jamaica ginger has been brought to the attention of public health bureaus in several of the Southern states. Bennett reports ten cases. All patients give a history of having taken "jake," but the wide variation in the time relation between the drinking of the "jake" and the onset of the paralytic symptoms is confusing. Two patients stated that symptoms started three days after they drank it and one claimed an intervening period of forty-two days. It was also noticed that the younger patients were less completely paralyzed than older ones. Bennett is of the opinion that the present epidemic of paralysis is undoubtedly related in some way to the use of intoxicating alcoholic beverages, but that jamaica ginger ("jake") alone is responsible is not an established fact. Of the known types of flaccid paralysis, this group corresponds more nearly to that of Landry's ascending paralysis, although the severe terminal symptoms characterizing that condition have not yet developed. The prognosis is guarded. No appreciable improvement has been seen in any case.

Jamaica Ginger Paralysis.—Harris reports seven cases. All of the patients were males who had been drinking jamaica ginger as a beverage, some for many months. The first symptom complained of was soreness in the calves of both legs lasting for one or two days. This soreness disappeared at the same time that they noticed that it was difficult to control the movements of the feet. This difficulty rapidly progressed, until they were unable to get about without the use of crutches or canes after about a week. At this time some of them began to complain of weakness of the hands and forearms. This was not usually preceded by any soreness. The patients also noted that the skin over the feet was glossy and tight but did not feel that there was any noticeable swelling. They did not complain of any pain, hyperesthesia or ataxia. The distribution of the weakness was practically uniformly bilateral. One patient on three occasions complained of inability to pass urine and required catheterization once. As the weakness progressed some of them became bedridden, but the majority continued to get about with the aid of crutches and canes. There were no mental or definite gastro-intestinal complaints. The neurologic examination of these patients showed no cranial nerve changes. The optic disks were normal in appearance. Steppage gait and foot drop were constant in all of the patients. Those in which the upper extremities were involved showed a bilateral wrist drop. There were no constant sensory changes, although there was definite but moderate hyperesthesia of the soles of the feet in two patients. The skin over the dorsum of the feet was usually slightly reddened and glossy, giving the appearance of slight edema. The paralysis was chiefly limited to the muscles of the lower legs, although in some the thigh muscles were also involved. In the cases in which the upper extremities were involved, the forearm muscles and the intrinsic muscles of the hands were affected. Beginning atrophy of some of the affected muscles was discernible in the two bedridden patients. They also showed early contractions of the calf muscles. The deep reflexes were most inconstant. The ankle jerks were not elicited in any case. In some cases the knee jerks were absent entirely; in others the response was distinctly hyperactive, and in some the knee jerks were within normal limits. The biceps and triceps jerks varied in a like manner. The plantar responses were normal. None of the patients showed any ataxia or loss of muscle and joint sense of position.

Nature and Treatment of Cardiac Fatigue.—On the basis of observation and experimentation, Harrison et al. suggest that loss of potassium from the heart muscle and consequent deficiency of buffering power may be an important factor in the production of cardiac fatigue. This phenomenon appears to be a result of edema. If this is true, cardiac fatigue is originally a result of cardiac insufficiency. But fatigue is also an important cause of further failure, and it is felt that this vicious cycle may explain the progressive nature of the cardiac failure. Congestive failure originally occurs as the result of cardiac overwork or of myocardial disease, or of both. Once edema has developed, the heart muscle begins to lose its alkali and with each successive "break" becomes more depleted. The heart has now become fatigued in the true biochemical sense and even though the load may diminish, as is often the case, the vicious cycle continues. If cardiac fatigue is due to loss of buffering power, particularly of potassium, the question arises whether it is possible to alleviate the condition in some measure by the administration of potassium salts. A definite answer is not yet forthcoming. The results in some patients have seemed encouraging, but the authors are not yet convinced as to the value of this form of treatment. In each of seven cases reported, the prognosis appeared to be poor before the administration of dibasic potassium phosphate in doses of 8 cc. of a 25 per cent solution, three times daily, was begun. Five of the patients seemed to progress much more favorably when receiving it than they had previously done.

Management of Eclampsia in Negro Race.—Upshaw analyzes 152 cases representing an incidence of 1.5 per cent, or fifteen per thousand obstetric cases. One patient developed forty-four convulsions, all post partum, and recovered. Another patient developed twenty-six postpartum convulsions with recovery, and a third developed twenty-three convulsions during labor and the puerperium, but recovered. The blood sugar was taken in forty-four patients, with an average reading of 87. The nonprotein nitrogen was taken in forty-four patients, with an average of 32.5. To control the convulsions, usually one hypodermic injection of morphine, one-fourth grain (16 mg.), is given and then followed with 20 cc. of 10 per cent magnesium sulphate intravenously. This is given hourly if necessary to control the convulsions. The magnesium sulphate is given

from three to five times if necessary. If more than five doses are necessary to control the convulsions, the drug is given intramuscularly and not more than 15 Gm. is given in twenty-four hours. This is said to be a safe margin. If coma is present it is not necessary or desirable to administer magnesium sulphate. After the patient becomes quiet, 300 cc. of 25 per cent dextrose solution is given intravenously slowly. This is repeated each twelve hours. No blood is withdrawn. The dextrose is given twice daily throughout labor and for three days following labor, and is continued once daily for two or three days following. Labor is induced by the most conservative method, by bag or catheter or by both. Since this treatment was instituted in 1925, the mortality rate has been 12 per cent. In the last forty-two cases only two maternal deaths have occurred. In the last fifteen patients receiving magnesium sulphate and dextrose, not one has developed convulsions after this treatment was begun. No untoward or ill effects of either magnesium sulphate or dextrose have ever been noted in either mother or baby.

Cesarean Section Under Spinal Anesthesia in Late Toxemias of Pregnancy.—Johnson and Johnston believe that in a great majority of cases of late toxemia of pregnancy, the conservative treatment is the one of choice but that spinal anesthesia offers a means of terminating pregnancy in selected cases with a minimum amount of shock.

Recent Developments in Control of Malaria.—Deeks says that the administration of 1 centigram of plasmochin does not always prevent oocysts from developing in the stomachs of the mosquitoes, but that they were few when compared to the number that developed in mosquitoes fed on patients who had not been given plasmochin. Furthermore, a single dose of 2 centigrams of plasmochin proved successful in all the cases treated, and in no instance did the mosquitoes fed on patients for seven successive days thereafter develop an oocyst. These results appear conclusive; and, if they are further confirmed, plasmochin will become an almost indispensable agent in effective malaria control.

Administration of Quinine by Rectum in Treatment of Malaria.—Satisfactory results in the reduction of temperature in malaria and the elimination of parasites from the peripheral blood have been attained by Taylor by the rectal administration of 60 grains (1.3 Gm.) of powdered quinine sulphate in 2 ounces (60 cc.) of olive oil. After the first treatment is given, the following routine is established: one hour before the evening meal the patient is given 2 ounces of magnesium sulphate. This will normally assure a complete evacuation before the patient has gone to sleep. At 7 a. m., the following morning, a soapsuds enema is administered, and at 8 a. m., or after expulsion of the enema, the quinine-oil instillation is carried out. In this manner, sleep is not interfered with, and the patient is able to devote his energy to the necessity of retaining the deposited dose of quinine for six hours. It is not necessary to restrict fluids during the six hour interval and the dietary is not interrupted. At 2 p. m., the patient is told that he is at liberty to evacuate his bowels. This method has not been employed in cases of gastro-intestinal or cerebral disease. Selective use of the method in these and other grave forms of malaria is indicated if speed of action is not of primary concern, and if adequate control of administration is assured.

U. S. Veterans' Bureau M. Bull., Washington, D. C.

6: 347-433 (May) 1930

Malignancy (Sarcomatosis) in Hodgkin's Disease: Two Cases. H. D. Luse and F. Grave.—p. 347.
Agranulocytosis: Case. A. Blumberg and E. B. Peace.—p. 354.
Combined Sclerosis Associated with Pernicious Anemia. J. N. Perkins.—p. 367.
*Narcolepsy. E. L. Crouch.—p. 371.
Recognition and Treatment of Laryngeal Tuberculosis. A. M. Wigglesworth.—p. 378.
Treatment of Tuberculosis of Larynx and Pharynx. R. C. Buck.—p. 381.
Fibrosis of Bronchial Tree. T. S. Carrington.—p. 384.
*Widal Reaction; Findings of Clinical Interest. W. E. Chambers.—p. 387.
Diagnosis of Conditions Causing Symptoms in Right Upper Abdominal Quadrant. S. Strong.—p. 390.
Constitutional Inferiority. H. E. Foster.—p. 395.
Lymphosarcoma: Case. J. E. Fahy and H. E. Mason.—p. 402.
Hodgkin's Disease: Case. W. F. Dager.—p. 406.
*Radiation Therapy in Hodgkin's Disease. R. C. Shawhan.—p. 409.
Recurrent Erysipelas. C. R. F. Beall.—p. 411.
*Mercurochrome Treatment of Case of Streptococcus Viridans Septicemia with Recovery. R. L. Harris.—p. 413.
Higher Standards for Attendants. T. E. Pedersen.—p. 416.
Occupational Therapy. R. W. Soper.—p. 420.
Occupational Therapy for Psychotic Patients. E. H. Clark.—p. 422.

Narcolepsy.—Of four patients admitted to the hospital who at one time had had their condition diagnosed as "narcolepsy," on account of frequent attacks of somnolence during the day, Crouch says one had an associated organic brain lesion of the hypothalamic region and obesity. Another was a case of somnolence in Fröhlich's syndrome showing obesity, atrophy of the genitalia and hypopituitarism. In still another case, the attacks of somnolence followed a prolonged rest treatment for pulmonary tuberculosis. The fourth case of trancelike periods proved to be of psychogenic origin. He concludes that the manifestations of diurnal sleep attacks and toneless attacks, occurring either separately or combined, should be considered a symptom complex.

Widal Reaction: Observations of Clinical Interest.—Chambers asserts that a single Widal test is of no value for diagnosis if the patient has received antityphoid vaccination or if there is a history of the patient having had typhoid. Following an attack of typhoid or antityphoid vaccination, the Widal reaction may be positive more than thirteen years later; and, from present observation, it seems probable that the persistence of the Widal reaction, after convalescence or immunization, is indefinite in duration.

Radiation Therapy in Hodgkin's Disease.—Shawhan reports a case of Hodgkin's disease in which the results of radiation therapy were so encouraging that its superiority over other therapeutic measures in this disease would seem clearly demonstrated.

Mercurochrome Treatment of Case of Streptococcus Viridans Septicemia with Recovery.—In the case reported by Harris, nine intravenous injections of mercurochrome were given, one each day, each injection consisting of 15 cc. of a 1 per cent solution. Two days after the last injection the blood culture was sterile. The origin of the infection was most probably in an abscessed tooth, which was extracted and was the only focus of infection that could be located.

West Virginia M. Journal, Charleston

26: 193-256 (April) 1930

Syphilis: Fifteen Thousand Cases. L. G. Martin, Hot Springs National Park, Ark.—p. 193.
Mental Defectives and Sterilization. T. Bess, Keyser.—p. 198.
Traumatic Shock. T. G. Reed, Elkridge.—p. 205.
Compression Therapy in Treatment of Pulmonary Tuberculosis. R. B. Bailey, Wheeling.—p. 207.
Eclampsia. K. Reynolds, Cumberland.—p. 210.
Delayed Labor. C. Frazier, Powellton.—p. 212.
Rambling Remarks on State Medicine. N. R. Price, Marlinton.—p. 215.
Treatment of Diseases of Ethmoid and Maxillary Sinuses. G. G. Snarr, Winchester.—p. 217.
Suspected Brain Tumor Cured by Operation on Sphenoidal Sinuses. T. W. Moore, Huntington.—p. 220.
Tubercular Salpingitis and Adenocarcinoma of Ovary: Case. R. K. Buford, Charleston.—p. 221.

26: 257-320 (May) 1930

Errors in Diagnosis and Treatment of More Common Acute Abdominal Conditions. G. J. Heuer, Cincinnati.—p. 257.
Treatment of Fractures. J. O. Rankin, Wheeling.—p. 268.
Colles' Fracture: Diagnosis and Treatment. C. W. Stallard, Montgomery.—p. 270.
Infant Feeding. J. D. Sturgeon, Jr., Uniontown, Pa.—p. 273.
Pulmonary Tuberculosis with Acute Onset. C. E. Smith, Hopemont.—p. 276.
Negative Wassermann, Positive Syphilis. A. P. Hudgins, Hinton.—p. 277.
Significance of Pupil in Diagnosis. G. A. Smith, Montgomery.—p. 279.
Heart in General Practice. J. B. Wolffe, Philadelphia.—p. 281.
Antepartum Eclampsia. C. L. Woodbridge, Montgomery.—p. 285.
Surgical Treatment of Pulmonary Tuberculosis. R. B. Bailey, Wheeling.—p. 286.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Diseases in Childhood, London

5: 83-166 (April) 1930

*Gastromegaly and Chronic Duodenal Ileus in Children. R. Miller and H. C. Gage.—p. 83.
*Gastromegaly from Chronic Duodenal Ulcer in Child. R. Miller.—p. 133.
Gastric Secretion in Infants and Children. A. V. Neale.—p. 137.
Varicella Encephalitis: Two Cases. S. Graham.—p. 146.
Clinical and Biochemical Study of Subnormal Child. A. A. Osman and H. G. Close.—p. 149.

Gastromegaly and Chronic Duodenal Ileus in Children.—Nine cases showing enlargement and hypertrophy of the stomach (gastromegaly) are reported by Miller and Gage. In them the symptoms date from birth or early life and consist at first more of anorexia than of vomiting. Other symptoms are malnutrition, lack of growth, hiccup and borborygmus, mucus in the feces from the presence of chronic gastritis, and occasional fatty stools. A peculiar feature is the comparative lack of pain in the abdomen except immediately preceding vomiting. Thus, the symptoms do not readily raise the suspicion of organic obstruction to the evacuation of the stomach, but careful examination reveals the presence of obstruction, and roentgenograms show that this does not arise in the stomach itself. Hence a diagnosis of gastromegaly from chronic duodenal obstruction is reached, and reasons are given for the view that the cases described owe their origin to chronic duodenal ileus. There is in these cases a tendency for spontaneous improvement to occur during the later years of childhood. Wilkie and others noted that adult cases of chronic duodenal ileus may give a history of symptoms during childhood which pass off for many years during adolescence. Other causes of gastromegaly from chronic duodenal obstruction are discussed.

Gastromegaly from Chronic Duodenal Ulcer in Child.—Miller reports the case of a previously healthy female baby who began at the age of 6 months to suffer from vomiting which continued more or less up to the age of 7 years. At 7 she showed extreme gastromegaly from obstruction to the evacuation of the stomach, which operation disclosed to be due to a chronic cicatrizing duodenal ulcer. Gastrojejunostomy gave permanent relief from the symptoms of ulcer. At the age of 28 her abdomen was opened for gallstones and the scar of the old ulcer adherent to the head of the pancreas was seen.

British Medical Journal, London

1: 769-806 (April 26) 1930

Preservation of Healthy and Efficient Circulatory System from Childhood to Advanced Age. J. Barr.—p. 769.
*Acute Perforation of Stomach and Duodenum. A. G. Bryce.—p. 774.
*Existence of Fourth Hormone, Thyreotropic in Nature, of Anterior Pituitary. F. A. E. Crew and B. P. Wiesner.—p. 777.
Intravenous Pyelography. E. J. H. Roth and H. W. S. Wright.—p. 778.
*Swelling of Feet and Ankles Not Associated with Albuminuria or Gross Organic Disease. A. A. Osman.—p. 780.
After-History of Case of Gallstones in Young Subject. G. H. Edington.—p. 782.
Meningitis Following Operation on Antrum in Patient with Complete Transposition of Viscera. H. G. Mitchell.—p. 782.
Herpes Ophthalmicus Following Chorea and Associated with Varicella. T. V. Pearce.—p. 782.

Acute Perforation of Stomach and Duodenum.—The method of treatment in 154 cases analyzed by Bryce was to invaginate the perforation by two layers of suture and to strengthen them by an omental graft. At the pylorus and in the duodenum the suture line was made to lie in the transverse axis of the bowel. Immediate gastro-enterostomy was not practiced as a routine and was, in fact, performed in only three of the cases. In one patient the perforation was converted into a gastrostomy by the insertion of a tube drain. Peritoneal drainage—usually suprapubic—was employed in about one third of the cases, and more frequently in the earlier than in the later ones. Of the 154 patients 20 died, a mortality of 12.9 per cent. The lesion was in the duodenum in 100 cases (8 deaths), at the pylorous in 33 (5 deaths), and in the stomach in 21 (7 deaths). Six of the stomach cases were malignant. In the twelve-hour groups the cases of duodenal and pyloric perforations treated without gastro-enterostomy show an almost identical mortality, between 7 and 8 per cent. Of 103 patients treated without gastro-enterostomy, 3 have died, 2 from carcinoma of the stomach and 1 (duodenal) from an unknown cause. Thirty-three are quite free from any kind of stomach trouble; 27 have or have had slight symptoms, certainly or possibly attributable to ulcer, but not justifying operation; 26 have ulcer symptoms which do or might by some be held to indicate operation; 15 have had a second operation for ulcer. The immediate mortality of treatment without gastro-enterostomy in 125 cases perforated for twelve hours or less was 9.6 per cent; and in 26 cases perforated for more than twelve hours, 26.9 per cent.

Existence of Fourth Hormone Thyreotropic in Nature of Anterior Pituitary.—Crew and Wiesner see no escape from the conclusion that there must be at least four hormones elaborated by the anterior pituitary—the growth factor, two gonadotropic factors (presently called rho 1 and rho 2), and a metamorphic factor, which they think provisionally should be given the name of theta.

Swelling of Feet and Ankles Not Associated with Albuminuria or Gross Organic Disease.—The type of edema described by Osman occurs mainly in the feet, ankles and legs, is at its maximum in the evenings, and is worse after exertion and in hot weather. It may be constantly present, waxing and waning with the factors mentioned, or may occur only under some of these conditions, disappearing apparently spontaneously for weeks or months at a time, and then perhaps recurring. There is reason to believe that the relative frequency with which the edema is complained of in the feet and ankles is probably due entirely to the effects of gravity, as in reality the excess of water, or edema, is present in all the tissues of the body, though often not in sufficient amount to attract attention. During the course of the day the edema tends to drain down to the feet and, by the evening, has there collected in sufficient amount to be noticed by the patient. It is suggested that it is an underlying "acidosis," the exact cause of which is not known, which leads to excess of water in the tissues, and that in minor degrees of the disorder the accumulation of fluid is sufficiently great to attract attention only under the influence of gravity, and hence the frequency with which it apparently occurs in the feet and ankles alone. Taking the group as a whole there is a considerable diminution in the plasma bicarbonate values in these waterlogged subjects, compared with the normal, which is probably not due to hydremia or wateriness of the blood, as then the hemoglobin percentage also would be reduced. The treatment adopted in these cases consists in giving sufficient alkali, in the form of equal parts of potassium citrate and sodium bicarbonate, by the mouth, to raise to and maintain the plasma bicarbonate at a normal level, and possibly to increase the alkalinity of the tissues—at all events, to give enough alkali to promote a diuresis sufficient in amount to remove the excess water from the tissues.

1: 807-848 (May 3) 1930

*Treatment of Mammary Carcinoma by Radiation. G. L. Cheatle.—p. 807.
*Mechanism and Treatment of Prostatic Obstruction. K. M. Walker.—p. 811.
*Puerperal Sepsis. E. F. Murray.—p. 814.
*Mechanism of Referred Pain in Dyspepsia. A. T. Todd.—p. 816.
*Chronic Hypoglycemia. P. J. Cammidge.—p. 818.
*Flavine in Perineal Dressings. M. A. D. Crawford.—p. 822.
*Flavine in General Surgery. W. J. Sheehan.—p. 822.
Cure of Thrombopenic Purpura by Liver. F. H. Jacob and T. Clapperton.—p. 823.
Herpes Ophthalmicus Coincident with Varicella in Adults. B. Barling and J. Cahill.—p. 823.
Torsion of Gallbladder. R. G. Gwynne.—p. 823.
Sudden Death from Injury to Cerebral Peduncles. S. D. Isaacs.—p. 824.

Treatment of Mammary Carcinoma by Radiation.—Cheatle asserts that pathologic observation shows that the whole of the breast itself should be irradiated in carcinoma of that gland and describes the method he adopts in delivering interstitial radiation to a breast containing carcinoma. The method of interstitial irradiation is the direct application of the source of radiation to the tissues so that it is in actual contact with them. The source of interstitial radiation is either radium element or its emanation. Cheatle states further that the axillary, supraclavicular and intercostal regions and the subcutaneous tissue of the chest should be irradiated in every case,

however localized to the breast the disease appears to be. The radical removal of an operable carcinoma of the breast will always be safer than an inadequate irradiation of the gland. By the radical operation the whole of the carcinomatous area will be removed with certainty, and so will all potentially dangerous epithelial neoplasia that may exist elsewhere in the breast. The treatment of carcinoma of the breast by means of radium will be of comparatively little use unless it is completely successful in the sterilization of the earliest phases of carcinoma in that gland. The results of five cases treated so far support the conviction of G. L. Keynes, who believes that interstitial irradiation is the operation of choice in the treatment of early carcinoma of the breast. The tumors in the breast have melted away and have left no signs of their previous existence. Before considering the definite treatment of a carcinoma of the breast by means of radiation, the question arises whether a preliminary test of its radiosensitivity by means of external irradiation should be made. In the first place, if a tumor regresses rapidly after external irradiation there is no need to consider the application of interstitial radiation, and excision is definitely contraindicated. The disease being highly radiosensitive indicates that it is also highly anaplastic and has therefore spread beyond all reach of surgical procedures. On the whole, the fact that so few carcinomas of the breast are radiosensitive suggests that it would be wasting valuable time (about three weeks) to subject them to this preliminary test. The present aims of interstitial irradiation by means of the radium element are as follows: 1. To arrange the needles so that a small dose can be delivered evenly over the whole gland for a comparatively long time. 2. To arrange the needles so that the dose of radium element they contain cannot damage the skin to a great degree. Damage cannot be avoided in all instances. 3. To examine the blood before treatment so that the result of the examination may act as a standard by which subsequent changes may be estimated during treatment. The relevant data are the number of lymphocytes and polymorphonuclear leukocytes, the shape, size and number of red blood corpuscles, and the amount of hemoglobin. 4. The roentgenogram of a chest may indicate the extent to which it may be involved by metastases. The most difficult object to attain is the uniform distribution of the dosage. The best method of controlling this disadvantage is to support a mobile breast in position while the needles are being inserted. An assistant holds it up in position by means of his thumbs and forefingers. Afterward, if the breast is not kept in position by the needles themselves, it is controlled by means of carefully applied strapping. The size of the breast affords another problem in interstitial irradiation. A breast weighing from 2½ to 3½ pounds consists chiefly of fat, and the glandular elements may be scattered in branches of connective tissue that are widely separated from one another by adipose tissue, or the gland may be more compact and an enormous collection of fat may surround it. There are no clinical means by which the arrangement can be discovered. The dosage of radium element to so large an area might be more than the blood could tolerate with safety unless it was administered piecemeal. In inoperable carcinoma of this kind, Cheatle either has adopted this piecemeal treatment or advises treatment by external irradiation, hoping that the tumor may be radiosensitive.

Mechanism and Treatment of Prostatic Obstruction.—Walker states that while a dynamic theory may account for the retention of a hydronephrosis, spasm of the vesical sphincter is a contributory rather than a primary factor in the causation of a prostatic retention. The explanation of retention that he has found most satisfying is that there exists a constant mechanical obstruction acting along the lines suggested by Swift Joly which is supplemented by the variable factors of congestion and spasm. In discussing treatment he emphasizes the importance of treating each type of prostate on its own merits and has called attention to the value, in selected cases, of such operations as the removal of a middle lobe and of perurethral diathermy.

Puerperal Sepsis.—Murray stresses the point that an individual with an acutely septic throat may cause puerperal sepsis by coughing on his or her hands, dressings, instruments or patients; hence outbreaks of fever or definite sepsis in maternity hospital practice are preventable.

Mechanism of Referred Pain in Dyspepsia.—Pain of some of the upper abdominal viscera is shown by Todd to be referred to some of the muscles of respiration. This respiratory muscular hyperalgesia may interfere with the respiratory pump and the supply of blood to the right auricle. It is considered possible that some cases of pain resembling angina pectoris are due to this factor and that properly directed treatment may result in cure in the early stages.

Chronic Hypoglycemia.—A fasting blood sugar of 70 mg. or less per hundred cubic centimeters has been noted by Cammidge in more than 200 patients during the past five years. There is no characteristic sign to draw attention to hypoglycemia, as glycosuria does to hyperglycemia, but in most cases the history and symptoms are sufficient to suggest a diagnosis if the possibility of its presence is borne in mind. Chronic hypoglycemia is not limited to any particular age or sex, and although a low blood sugar figure appears to be most commonly associated with symptoms calling for treatment in children, no period of life is exempt. Breeding experiments with mice have indicated that a naturally occurring hypoglycemia is an hereditary character transmitted in accordance with Mendel's theory. A history of symptoms suggesting a hypoglycemic complex was obtained among blood relations in 35 per cent. In forty-eight cases distributed in nineteen families, a low blood sugar figure was found in one of the parents of affected children in thirty-six instances; two patients were uncle and nephew; cousins were similarly affected in two families, and a daughter, mother and grandmother in another. It is probable that an exciting agent is necessary for the development of the condition as a rule, and maybe it is the sole cause in some cases. In Cammidge's experience the most common exciting cause is a chronic infection, which, in the early years of life, is often located in the tonsils, antrum or middle ear and later in life is often seen in the mouth but at all ages is most frequently found in the intestine. Comparatively few patients with chronic hypoglycemia are free from gastro-intestinal disorders; long-standing constipation is common, but frequent and offensive stools are not unusual, especially in children, and some patients have distention, flatulence and heartburn. Even when no complaint is made, examination of the feces commonly reveals abnormalities of digestion and absorption. Among the conditions in which a low blood sugar was found were cyclic vomiting of children, 32 cases; recurrent bilious attacks, 13 cases; pernicious vomiting of pregnancy, 6 cases; recurrent headaches, 23 cases; neurasthenia, 11 cases; convulsive attacks, 7 cases; lack of energy, 36 cases. In 24 cases the condition was discovered on examination for life insurance. In 48 cases, routine examination of the blood revealed chronic hypoglycemia. Increasing experience of chronic hypoglycemia has emphasized the etiologic importance of acquired infections and intestinal disorders; and as greater attention has been paid to their detection and more efficient measures for dealing with them have been adopted there has been a corresponding improvement in the results. Clinical experience and experiments with animals have likewise shown that early prophylactic treatment of the descendents of hypoglycemic parents prevents the development of serious symptoms and has a beneficial effect on their general health.

Flavine in Perineal Dressings.—Crawford uses an emulsion of flavine in paraffin as a routine dressing in all perineorrhaphies. As a rule he waits for twenty-four or forty-eight hours, so as to allow the natural sealing of the wound by serum; then at the latest on the third day, the day on which an aperient is given and before the bowels are opened, he starts dressing with a narrow strip of gauze about 3 inches long, soaked in the emulsion, applying it by means of forceps laid on the colpoperineorrhaphy wound. A little of the emulsion enters the vagina and protects the colporrhaphy wounds higher up. The dressing is renewed after each micturition. He has also used this emulsion to his satisfaction as a perineal dressing after craniotomy in cases in which previous futile attempts to deliver by forceps had caused great bruising of the vulva. It is made up at a strength of 1 in 1,000.

Flavine in General Surgery.—Sheehan reports two cases of traumatic moist gangrene of an extremity and a case of traumatic hernia of the spleen in which the external wound was dressed with flavine (1 in 1,000) to good purpose.

Lancet, London

1: 999-1052 (May 10) 1930

Significance to Clinical Medicine of Studies in Calcium and Phosphorus Metabolism. D. Hunter.—p. 999.
*Chronic Streptococcal Illnesses. C. B. Perry.—p. 1009.
*Micro-Organisms in Psittacosis. A. C. Coles.—p. 1011.
Cesarean Section under Spinal Anesthesia. J. W. Burns.—p. 1012.
Proof of Patency of Common Bile Duct by Injection of Lipiodol. W. B. Gabriel.—p. 1014.
Intestinal Disease in Infancy: Two Cases. A. E. Somerford.—p. 1015.
Local Absorption of Fat Due to Injections of Insulin. L. R. W. Price. —p. 1015.

Chronic Streptococcal Illnesses.—Perry is of the opinion that the important factor in chronic streptococcal illnesses depends not so much on the infecting streptococcus as on its mode of entry into the host, on the host itself, and its previous experiences with the indifferent streptococci.

Micro-Organisms in Psittacosis.—On examination of blood films from a woman suffering from psittacosis, Coles found minute diplococcoid and coccoid bodies, and in most cases a few small bacilli or diplobacilli. The most characteristic were the diplococcoid bodies. They closely resemble some of the rickettsia bodies. He is of the opinion that the small bacilli will prove to be secondary invades but that the coccoid and diplococcoid bodies found in the blood of man and infected animals are probably identical with the characteristic and suggestive groups or masses of these bodies in the spleen of the inoculated mouse. The coccoid bodies are small enough to pass the Seitz filters and have been definitely found in the filtrate, and these may prove to be the causal organisms of this disease. He suggests that they might provisionally be termed the coccoid X bodies of psittacosis.

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22: 105-156 (Feb. 21) 1930

Congenital Anomaly of Colon. Thévenard.—p. 107.
Extraction of Foreign Bodies from Esophagus. J. Guisez.—p. 112.
*Inflammatory Luxation of Hip. L. Muller.—p. 122.
Prostatic Lithiasis. V. Planson.—p. 126.
Hernia of an Epiploic Appendix Simulating a Strangulated Hernia. Le Gac.—p. 133.
Cancer of Rectum: Kraske's Operation. Victor-Pauchet.—p. 136.
Fracture of Tarsal Scaphoid. C. Rœderer.—p. 140.
*Generalized Peritonitis Following Radium Irradiation of Uterine Fibroma. L. Bonnet.—p. 142.
Hydronephrosis Coincident with Anomaly of Ureters. F. Rousseau. —p. 145.
Intestinal Occlusion Due to Strangulation of Pelvic Colon by Appendix. Croisier.—p. 151.
Late Paralysis of Ulnar Nerve Subsequent to Old Fracture of External Condyle of Humerus. E. Bressot.—p. 153.

Inflammatory Luxation of Hip.—This occurred in Muller's patient, aged 19, in an insidious manner subsequent to an infection of a finger on his right hand through injury with a spike. He was seen immediately by a physician, who advised treatment with iodine and hot bathing of the hand. However, three days later a swelling of the lymph nodes in the right axilla was noted which remained indurated for several days. The patient's temperature was considerably increased, but all traces of the injury to the finger had meanwhile disappeared. Injections of colloidal silver preparations and antistreptococcic vaccine were given. Twenty days after the accident the axillary lymph nodes were opened and drained. The pus contained a pure culture of streptococci. The temperature dropped after the intervention but increased again, and one week later a swelling of the left knee was noted. Fluid was withdrawn by puncture in which only a few leukocytes and no bacteria were found. The patient did not improve, and two weeks later the knee had increased considerably in size. The joint capsule was now opened with removal of pus and placing of a drain. Microscopic examination showed several bacteriolyzed cocci whose cultivation disclosed streptococci in short chains. The temperature increased again the following week and double arthrotomy of the left knee was done. Drains were placed which, however, were removed about two weeks later. During dressing of the wound it was noted that the left thigh appeared considerably shorter than the right one. Roentgen examination disclosed a luxation of the hip. Reduction under general anesthesia was attempted six weeks later but was not successful. The patient was therefore placed in a plaster cast for ten weeks, but this treatment did not give the desired result. On roentgen examination a marked decalcification of the femur and iliac bones was now observed. Five months later the hip joint had completely consolidated and the leg remained considerably shorter than the other one.

Generalized Peritonitis Following Radium Irradiation of Uterine Fibroma.—Bonnet directs attention to the danger of intra-uterine radium therapy. After treatment of a uterine fibroma in his patient, aged 37, by radium irradiations, symptoms of a generalized peritonitis became manifest. Hysterectomy was done, with placing of a drain, and the patient recovered. The operation disclosed that the peritonitis had been caused by an exacerbation of suppurating adnexal lesions. There was at no point an indication of a rupture of the purulent salpingitis. Bonnet points to the importance of ascertaining the previous clinical histories of patients with uterine fibroma before beginning radium therapy.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 381-464 (March 24) 1930

Hypertensive Crisis Due to Ingestion of Epinephrine. J. Troisier and Weiss-Roudinesco.—p. 383.
New Type of Nanism: Dyschondrosteosis (Achondroplasia and Dysostosis). A. Léri, Flandin and Arnaudet.—p. 385.
Multiple Unilateral Chondromas: Case. J. Huber and Belot.—p. 388.
Roentgenography of Entire Skeleton on One Film. J. Belot and F. de Pennetier.—p. 389.
*Galactorrhea in Acromegaly. P. Carnot and Bouttier.—p. 392.
*Myotonic Myopathy with Chvostek's Sign. F. Rathery, P. Mollaret and R. Waitz.—p. 395.
*Benign Acute Lymphocytic Meningitis Simulating Tuberculous Meningitis. Roch, E. Martin and V. Monedjikova.—p. 402.
*Slight Endarteritis Obliterans of Lower Extremities: Roentgenotherapy of Suprarenal Region. L. Langeron and R. Desplats.—p. 437.
Neurotropism of Dengue. Avaritsiotis.—p. 441.
*Symptoms of Disturbances of Sympathetic Nervous System Resembling Symptoms of Exophthalmic Goiter: Parabasedowian Syndrome. M. Labbé, E. Azerad and Gilbert-Dreyfus.—p. 445.
Bilateral Gangrene of Toes in Patient with Hereditary Syphilis. A. Sézary and Hufnagel.—p. 453.
Cardiac Epilepsy. L. Ramond, S. Vialard and G. Gay.—p. 456.

Galactorrhea in Acromegaly.—In Carnot and Bouttier's patient, aged 27, symptoms of increasing acromegaly had been noted for several years. The symptoms consisted of an increase in the size of the hands and feet, severe pains and increasing size of the maxilla, hypertrophy of the tongue, enlargement of the sella turcica, and thickening of the bones of the skull. Menstruation had been irregular and often deficient for the past three years, coincident, however, with a persistent lactic secretion from the breast. Injection of the urine of the patient into not fully developed or castrated female mice and rats and male rats did not stimulate the development or activities of the genitalia or hormones of hypophyseal origin. According to the authors, this points toward separate kinds of hormones. Anterior lobe hormones stimulating mammary secretion may be distinguished from those stimulating activity of the genito-urinary tract.

Myotonic Myopathy with Chvostek's Sign.—Rathery et al. report the clinical history of a man, aged 48, in whom amyotrophy of both arms had developed about three years previously. He entered the hospital on account of ulcerations on his legs. He had developed increasing baldness about eighteen years before and operation for a bilateral cataract was done about that time. His teeth were in a bad condition, and the syndrome of myotonia was noted in the face and neck after percussion of the muscles and especially after electrical stimulation. There was likewise considerable dystrophy of the subcutaneous tissue and atrophy of the testes. There was no hereditary or acquired syphilis and the internal organs were normal. With the exception of an increase in the alkali reserve, the blood likewise appeared normal. In the etiology of the disease the authors point to possible parathyroid insufficiency and believe that the disease is related to tetany.

Benign Acute Lymphocytic Meningitis Simulating Tuberculous Meningitis.—Within the past eight years, Roch et al. observed twelve cases; the clinical histories of seven of these patients are reported. In none of them could a bacterial agent be found and there was in no case evidence for an

infection having preceded the symptoms. In some patients, digestive disorders were noted during the first days of the disease. Several had previously had tuberculous lesions, which may point to the existence of a filtrable virus. In others, epidemic encephalitis may possibly be incriminated. One patient had had herpes. Lumbar puncture caused considerable relief, and examination showed that there was a slight increase of albumin in the fluid; but no bacteria were found. Inoculation of guinea-pigs was likewise negative.

Slight Endarteritis Obliterans of Lower Extremities: Roentgenotherapy of Suprarenal Region.—The clinical histories of two patients suffering with mild symptoms of the disease are reported by Langeron and Desplats. Roentgen irradiation of the suprarenal area resulted in functional improvement and relief from pain. The symptoms of trophic disorder disappeared and the patients were able to walk. Objectively, however, the symptoms of circulatory disorders were not modified. The effect of the roentgen irradiation appeared limited to vasomotor action. Further research in this direction is advised.

Symptoms of Disturbances of Sympathetic Nervous System Resembling Symptoms of Exophthalmic Goiter: Parabasedowian Syndrome.—Under this term Labbé et al. group a variety of pathologic manifestations which differed, however, from the manifestations of true exophthalmic goiter by certain characteristics. Especially the basal metabolism differed from that noted in exophthalmic goiter by its constancy and normal level. Roentgenotherapy and medication with iodine preparations did not influence the condition, and the prognosis was favorable without complications of thyrotoxicosis arising. There was likewise no loss of weight. The authors base their observations on the clinical histories of thirty patients.

(54): 465-526 (March 31) 1930

Benign Acute Lymphocytic Meningitis of Undetermined Origin Simulating Tuberculous Meningitis. H. Barbier.—p. 466.
*Erysipelatous Patches in Streptococcal Septicemia. C. Aubertin and J. Fleury.—p. 468.
Bacteremia: Successful Treatment with Acridine Derivatives. M. Renaud.—p. 470.
New Type of Spirometer. L. Chéron.—p. 471.
Dexiocardia and Bronchial Dilatations Due to Pulmonary Sclerosis of Probable Tuberculous Origin. L. Bernard and M. Lamy.—p. 474.
Septicemia Due to Friedländer's Pneumobacilli, with Pulmonary Focus: Recovery After Treatment with Acriflavine Base. P. Abrami and R. Worms.—p. 479.
Special Form of Streptococcal Septicemia: Hyperacute Streptococcal Myositis. P. Abrami and R. Worms.—p. 487.
Primary Cutaneous Tuberculosis: Case. L. Bernard, M. Lamy and P. Gauthier-Villars.—p. 494.
Arterial Pressure and Oscillometric Index in Exophthalmic Goiter. C. Lian, M. Skarika and Thoyer.—p. 497.
Intolerance and Biotropism. A. Tzanck.—p. 508.
Cancer of Pancreas with Multiple Metastases. Mircea-Halitza.—p. 513.
Experimental Miliary Tuberculosis. M. Macaigne and P. Nicaud.—p. 517.

Erysipelatous Patches in Streptococcal Septicemia.—Aubertin and Fleury report the history of a man, aged 20, in whom several small boils developed one day and a severe sore throat two days subsequent to being shaved in a barber shop. In spite of incision of a large boil under the chin, with abundant discharge of pus, the general condition did not improve. One week after the onset of the symptoms, he entered the hospital. Examination disclosed several circular reddish patches on the patient's face, and on the back of the left hand was a scar still covered by a crust where the patient had been pricked by a rose thorn. The patient had severe pain in all joints. His heart was normal and the liver palpable. Culture of the blood disclosed the presence of hemolytic streptococci in large chains. The following day, large patches of erysipeloid aspect were noted on both arms; the skin was thickened and edematous but not painful on pressure. These symptoms persisted for several days coincident with an increasing dryness of the mouth. A second blood culture again revealed the presence of hemolytic streptococci. In spite of a slight decrease of temperature the patient became delirious, and death ensued five days after his entry to the clinic. Necropsy disclosed the presence of abundant seropurulent fluid in both pleural cavities; the lungs were congested, and an infarct was noted in the left one. The heart appeared normal but the spleen was enlarged, as were the liver and the kidneys. Hemorrhagic patches were noted on the mucosa of the ileum.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 233-265 (March 1) 1930

Umbilical Hernia of Embryonic Type. G. Küss.—p. 234.
Origin of Sudden Pain in Perforation of Gastroduodenal Ulcer. Guimbellot.—p. 237.
Severe Open Fracture of Right Leg: Anatomic and Functional Recovery Without Osteosynthesis. Négrié and Canton.—p. 239.
*Acute Purulent Arthritis of Right Elbow Containing Streptococci. Négrié and Canton.—p. 241.
*Experimental Production of Duodenal Ulcers Through Exclusion of Bile. G. Loewy.—p. 243.
Compression of Small Intestine in Hernial Sac. G. Métivet.—p. 250.
Fibroma of Uterus and Sigmoid Cancer. J. Okinczyc.—p. 251.
Cancer of Terminal Part of Pelvic Colon. J. Okinczyc.—p. 256.
Occipital Flap in Operations on Cerebellum. T. de Martel.—p. 261.

Acute Purulent Arthritis of Right Elbow Containing Streptococci.—Négrié and Canton's patient had acute pain in the right elbow which increased in the evening coincident with a rise of temperature. He did not have a sore throat. Two days later a large swelling appeared on each side of the olecranon process with inflammatory edema of the surrounding region. As the patient had had a gonorrheal infection some time previously, it was thought that gonococci had caused the acute arthritis. However, examination of the pus obtained by puncture revealed a pure culture of streptococci. Arthrotomy was done with drainage of the joint cavity, and the patient recovered. It was found that the patient had adenoids, which were possibly the portal of entry for the streptococcic infection.

Experimental Production of Duodenal Ulcers Through Exclusion of Bile.—Loewy, using the technic of Rous and MacMaster, was able to produce a typical ulcer in one dog and multiple hemorrhagic lesions in six other dogs. In three animals the bile duct had only been ligated above the site of the anastomosis and the passage of bile into the intestines had resumed, which was noted by coloration of the feces. The animals were killed and examination showed a marked inflammation of the duodenal mucosa in two of them. The stomach appeared normal. In the four other dogs, exclusion of the bile was complete. Intestinal disorders were noted five weeks after the intervention; in two dogs intestinal hemorrhages occurred, and in one there was present an ulcer which was similar to human duodenal ulcers.

Paris Médical

1: 265-276 (March 22) 1930

Resection of Scalene Muscles and Thoracoplasty in Pulmonary Tuberculosis. R. Grégoire.—p. 265.
Arterial Hypertension: Etiology and Pathogenesis. M. Perrin and G. Richard.—p. 267.
*Lupus Erythematosus: Treatment. H. Bordier.—p. 272.
Relation Between Hypotension and Bronchial Asthma. P. Barbier.—p. 273.

Lupus Erythematosus: Treatment.—Bordier obtains favorable results in the treatment of lupus erythematosus through application of medical diathermy by means of a specially constructed electrode. This incites the formation of crusts, which is more favorable than scarification. This treatment should be combined with injections of a preparation of bismuth hydroxide combined with mesothorium bromide.

1: 277-292 (March 29) 1930

Address at Opening of Course of Pathology and General Therapeutics. A. Baudouin.—p. 277.
Pleural Pruritus. P. Chevallier and J. Bernard.—p. 286.
*Acute Rheumatismal Polyarthritis Complicated by Symptoms of Tuberculosis. G. Caussade and A. Tardieu.—p. 290.

Acute Rheumatismal Polyarthritis Complicated by Symptoms of Tuberculosis.—Caussade and Tardieu's patient, aged 21, entered the hospital for a severe attack of rheumatismal polyarthritis. He had had three similar attacks seven, five and four years previously. Neither during these periods of illness, which lasted from three weeks to several months each, nor at any other time had he had respiratory disturbances. For several years multiple indurated lymph nodes in the cervical, axillary and inguinal regions had persisted, but they did not lead to the formation of an abscess. The patient was, however, reared in a tuberculous environment. His mother had tuberculosis and his father was an alcoholic addict. Examination disclosed a

mitral lesion, and there was pain in the precordial region. Severe dyspnea persisted as a result of the pericarditis and hypersystole. The liver was enlarged and painful, and a double congestion of the apexes of the lungs was noted. The onset of the rheumatism had been insidious, and an increase in temperature was at first controlled by sodium salicylate. However, it gradually became more marked in spite of medication, and thirty-four days after the onset of the rheumatic symptoms a severe pulmonary condition developed with a subsequent pleural exudate. Although tubercle bacilli were not found in the sputum and inoculation of guinea-pigs was negative, the authors point out that the pleuropulmonary complication may nevertheless be founded on a tuberculous involvement. Laryngitis with tumefactions in the arytenoid muscles and the previous multiple adenopathies give support to this theory. It is possible that the virus of rheumatism had an allergic action on the latent tuberculosis.

Presse Médicale, Paris

38: 401-416 (March 22) 1930

*Regional Vaccination Through Portal of Entry of Disease. A. Basset and P. Poincloux.—p. 401.
Nervous Symptoms in Tuberculous Pseudoleukemia (Sternberg's Disease). H. Schæffer and A. Horowitz.—p. 403.
Efficacy of Peroral Administration of Insulin. W. Fornet.—p. 406.

Regional Vaccination Through Portal of Entry of Disease.—Basset and Poincloux discuss their experience with this treatment in forty-three patients suffering from nontuberculous salpingitis. The clinical histories of three patients are reported, together with a full description of the technic of this treatment. The authors emphasize that they do not claim to be able to cure the disease by this method. However, so far within the last two years during which they have been applying such treatment, there has been only one patient in whom the symptoms of inflammation recurred. In two others hysterectomy has been done subsequently. The condition of the forty other patients has remained satisfactory and did not necessitate surgical intervention. In every patient in whom the etiology of the infection could be traced and for whom a specific vaccine could be prepared, the treatment was successful.

Revue Belge des Sciences Médicales, Louvain

2: 1-120 (Jan.) 1930

*Chronic Stenosis of Duodenum. R. Appelmans, F. van Goidsenhoven and J. Boine.—p. 1.

Chronic Stenosis of Duodenum.—Appelmans et al., from their study of twenty-nine cases, conclude that chronic duodenal stenosis is relatively frequent and is produced by various causes. The condition manifests itself by digestive disturbances, usually following an intoxication due to a duodenal stasis. Roentgenologically there may be found a dilatation of the duodenum above the constriction; the stagnation of food in the dilated part produces violent peristalsis. Although the roentgen symptoms are distinct, the clinical picture is not necessarily so. Occasionally, stenosis may exist without apparent digestive disturbances. The symptomatology then is dominated by signs of duodenal intoxication, emaciation, physical or psychic asthenia, and persistent headaches. The symptoms are variable, because of the variety of causes that produce stenosis; but, with the help of roentgen examinations and other clinical methods, the necessary differentiation can be made. Duodenal stenosis may also be caused by anomalies of the colon; it is important, therefore, to examine the right colon whenever the roentgen examination reveals the existence of a dilatation with stasis in the duodenum. If periduodenitis coincides with a chronic stenosis of the duodenum, it is necessary to determine its cause. Next to a duodenal ulcer, it is often the appendix that may be incriminated. Duodenal stenosis may be complicated by hemorrhage without any ulcerations of the gastroduodenal mucosa. Duodenal or pyloric ulcer is frequently a complication of stenosis. In the presence of a duodenal ulcer, it is always necessary to examine the duodenum to determine whether or not its origin depends on duodenal stasis, and in that case treatment is first directed toward the inciting cause of the ulcer. Although medication may relieve the condition, duodenal stenosis is best treated surgically. The prognosis is good.

Pediatria, Naples

38: 361-416 (April 1) 1930

*Roentgen Irradiation of Lumbar Region in Acute Glomerulitis. G. Salvioli.—p. 361.
Behavior of Blood Platelets, of Coagulability and of Viscosity of Blood in Anemia. E. M. Mondini.—p. 377.
*Method for Estimating Quantitative Differences in Globulin Precipitation Test in Kala-Azar. L. Cerza.—p. 394.
Typhoid of Septicemic Nature and Protracted Evolution. A. Foa.—p. 401.
Eight Months' Fetus Escaping Infection with Measles of Mother. P. Iacchia.—p. 406.

Roentgen Irradiation of Lumbar Region in Acute Glomerulonephritis.—Salvioli studied the effects of roentgenotherapy (over the lumbar region) in acute glomerulitis in children. Twenty-seven children, aged from 3 to 8 years, were divided into three groups. The first group comprised twelve children with infectious or acute glomerulitis, who had as outstanding symptoms hematuria, oliguria or anuria. The second group comprised two children (one with hemorrhagic purpura and the other with polyserositis, with hematuria and oliguria, respectively, as complications). The third group comprised thirteen normal children. The first two groups received roentgen irradiation over the lumbar region. In the children of the first group the effects of the irradiation were as follows: there was increased diuresis and decreased hematuria in two, increased diuresis in three and decreased hematuria in three. In the remaining four members of this group as well as in the two patients of the second group, no effect on the diuresis or on the hematuria was noted. Some children of the third group were irradiated over the lumbar region while others received the rays on the thigh. In this group irradiation did not have any effect, either on the kidneys or on the diuresis. The irradiation field comprised the lumbar region, the ganglion of the sympathetic chain, and the preganglionic and postganglionic neurons which have their origin in the sympathetic chain and innervate the renal or celiac plexus. The author reaches the following conclusions: In acute infectious nephritis, roentgen irradiation of an area extending 6 cm. from the tenth dorsal vertebra to the second lumbar vertebra gives good results, even in the acute stage of the kidney diseases. As a rule there is simultaneous increase in the diuresis and a decrease in the hematuria. The treatment causes the cessation of the spasm, which is the causative factor of anuria or hematuria. Roentgen irradiation acts on the vasomotor innervation system of the kidneys. The irradiation has an effect on the vasoconstrictor system of the kidney when there is hypertonia (by controlling the hypertonia), but, when the equilibrium of the system is normal, irradiation has no effect.

Method for Estimating Quantitative Differences in Globulin Precipitation Test in Kala-Azar.—Sia's test for the quantitative determination of the precipitation of the globulin of the blood serum of kala-azar patients was described in the *China Medical Journal* **38**:35 (Jan.) 1924 (abstracted in THE JOURNAL, March 29, 1924, p. 1081). Cerza concludes that Sia's test has no diagnostic value; it is not specific and it is not sensitive enough to make its results reliable.

Revista de la Asoc. Méd. Argentina, Buenos Aires

43: 1-216 (Jan.-April) 1930. Partial Index

*Aneurysm of Internal Carotid Artery of Infectious Origin: Case. R. A. Bullrich and M. Besimsky.—p. 5.
*Psittacosis in Argentina. E. Barros.—p. 17.
Present Status of Treatment of Cancer of Larynx. A. R. Zambrini, J. Basavilbaso and R. Becco.—p. 63.
Rôle of Tonsils as Primary Focus of Infection. J. Layera.—p. 85.
Roentgen Examination of Region of Temporal Bone According to Method of Worms and Breton (Suboccipital Exposure). S. L. Arauz, J. M. Tato and C. del Campo.—p. 123.
Tonsillectomy and Tonsillotomy in Children: Comparative Results. F. A. Rojas.—p. 139.

Aneurysm of Internal Carotid Artery of Infectious Origin.—Bullrich and Besimsky relate the case of a man, aged 26, with an ulcerative and vegetative endocarditis caused by a general infection, who developed an aneurysm of the internal carotid artery near the bifurcation of the common carotid artery. The patient died one month and a half after the sudden onset of the symptoms.

Psittacosis in Argentina.—Barros presents a summary of sixty-two cases and a review of the literature. The diagnosis is comparatively easy. The variations observed are manifestations of the clinical form which the disease presents. The author divides these into benign, catarrhal, anginous, congestive, pneumonic, bronchopneumonic, gastro-intestinal and cardiopulmonary types. The treatment consists of proper general hygiene and diet, chemotherapy, proteinotherapy, vascular and heart tonics and in some cases sedatives. Antipyretic drugs have no value. Some roentgenograms of the thoraces of patients with psittacosis are shown. Eight pages of bibliography are given.

Revista Chilena de Pediatría, Santiago

1: 57-102 (Feb.) 1930. Partial Index

*Appendectomy and Disinvagination in Intussusception. J. Gandulfo. —p. 66.

Appendectomy and Disinvagination in Intussusception. —Gandulfo advises appendectomy in operations on children with ileocecal intussusception. He claims that late complications of intussusception, such as peritonitis (caused by perforation of a gangrenous appendix) or a partial or total occlusion of the small intestine (caused by a kink of the ileum) may thus be prevented. In these children, who as a rule are already emaciated as a result of the infection and under the influence of more or less postoperative shock caused by laparotomy (done under local anesthesia), these complications are always fatal. Indeed, they are the cause of the high mortality of intestinal intussusception in children. The author successfully performed these two operations simultaneously in six children, aged from 5 months to 5 years. All of them recovered.

Archiv für Kinderheilkunde, Stuttgart

90: 1-160 (March 28) 1930

Familial Splenic Anemia in Infants. P. Frick and G. Friedrich.—p. 1.
*Acute Suprarenal Insufficiency After Birth Trauma. F. Hepner.—p. 10.
*Chronic Pyuria in Children. M. Boddin.—p. 18.
*Crusade Against Rickets. E. Nassau.—p. 26.
*Subacute, Recurrent, Lymphatic Leukemia. K. Schirlitz.—p. 51.
Crusade Against Rickets. C. Andresen.—p. 65.
Intestinal Infantilism: Effect of Ingestion of Bile Acids on Resorption Conditions in Intestine. G. Bischoff.—p. 73.
Modification of Metabolism of Healthy Nursling by Means of Mixture of Salts. F. Boldt and M. Winter.—p. 83.
Scarlet Fever: Late Complications. G. Márkos.—p. 95.

Acute Suprarenal Insufficiency After Birth Trauma: Case.—Hepner reports the case of a previously healthy girl, aged 4 years, in whose clinical history it was stated that she was the only child of a middle-aged woman and that her delivery had been difficult and accomplished only by a version, in which a leg was broken. A short time before she was seen by the author there suddenly appeared convulsions, prolonged unconsciousness, high fever and hematemesis. Four days after the onset of the condition the patient died. Postmortem examination revealed as the cause of death an insufficiency of the suprarenals due to old hemorrhages that had been produced by birth trauma. The hemorrhages had been followed by extensive calcification and complete loss of the medullary substance of both suprarenals.

Chronic Pyuria in Children: Unusual Causes.—Boddin reports fourteen cases of pyuria in children in which the causes noted were spinal cord glioma once, bilateral cystic kidney once, bladder stone twice, kidney stone twice, hydropyonephrosis three times, and megalo-ureter five times. On the basis of his experience in these cases he states that the results of operative treatment are not so good in cases of malformation as they are in cases of urinary calculi. In all of the cases of calculi, operative treatment was followed by complete disappearance of the symptoms and a return of the urine to normal.

Crusade Against Rickets: Value of Day Sanatorium. —Nassau emphasizes the great value of a day sanatorium in the crusade against rickets. He gives a detailed account of the construction and operation of such a sanatorium for rickets that was built two years ago in a quarter of Berlin inhabited largely by poor people. The children are brought to the institution early in the morning and are given a bath. At 8 a. m. they have breakfast and then three hours is devoted to gymnastics, irradiation, play and kindergarten. At 12 they have dinner and then spend two hours lying in the open air. At 3 lunch is served and then two hours is spent in play and in the kindergarten. At 5:30 the children have supper and at 6 they are called for by their parents. The author emphasizes the relatively low cost of this form of treatment and the fact that it not only stops the progress of the rachitic changes in the bones but improves the muscle tonus, the static functions and a large part of the skeletal deformities.

Subacute, Recurrent, Lymphatic Leukemia: Case.— Schirlitz reports a case of subacute recurrent, lymphatic leukemia with an aleukemic phase in a boy, aged 14. One blood transfusion was followed by marked temporary improvement, but consent for a second transfusion could not be obtained and the patient died suddenly with symptoms of cardiac collapse.

Deutsche medizinische Wochenschrift, Berlin

56: 553-602 (April 4) 1930. Partial Index

Circulatory Compensation and Decompensation. G. von Bergmann. —p. 553.
Idem. E. Wollheim.—p. 556.
Lack of General Culture Among Younger Members of Medical Profession. A. E. Hoche—p. 560.
Results of Extensive Resection and of Total Extirpation of Stomach in Cancer and in Ulcer. H. von Haberer.—p. 562.
*Serotherapy in Lobar Pneumonia. A. Sonnenfeld.—p. 569.
Bases and Acids in Diseased Organisms. A. Magnus-Levy.—p. 571. C'td.
Practical Value of Capillaroscopy in Diagnosis of Angioneurotic Conditions. O. Müller.—p. 575.
Epidemics of Measles: Preventive Measures and Evidence Against Changing Virulence of Measles. J. von Bókay.—p. 578.
Discussion on Specificity of Heart Hormone and of Hormonal Substance in Brain. L. Haberlandt.—p. 581.

Serotherapy in Lobar Pneumonia.—Sonnenfeld reviews the literature on serotherapy in lobar pneumonia and reports his observations in thirty cases. He found that in some of the cases the polyvalent pneumococcus serum, which was prepared with types 1 and 2 pneumococci, had a favorable influence on the course of the disease. In other instances it had no effect whatever. In order to prevent anaphylactic shock the patients were given preliminary injections of 2 cc., but in spite of this precaution one of the patients died of an anaphylactic shock when the therapeutic quantity of 100 cc. was injected. At a single injection the quantity of 100 cc. was never exceeded, but in some instances the injection was repeated once or twice during the following days. Because the serum was prepared from types 1 and 2 pneumococci, it was expected that the best results would be obtained in patients who were infected with type 1 or 2. However, this was not the case. The most favorable effects were noted in patients with type 4 pneumococci, whereas in those infected with type 1 the disease took an especially malignant course. On the basis of his observations the author concludes that serotherapy is not type specific. Monovalent serums had not been employed in these cases. Whether they will be more effective than treatment with quinine or protein therapy has yet to be proved.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

70: 301-570 (March 15) 1930

Alimentary Hyperglycemia in Dogs with an Eck Fistula. W. Wachsmuth and M. Loeweneck.—p. 301.
Low Atmospheric Pressure: Effect on Carbohydrate Metabolism. E. Wertheimer.—p. 309.
Id.: Effect on Action of Incretions. G. Monasterio.—p. 314.
A Form of Habituation to Low Atmospheric Pressure. N. Alders and E. Wertheimer.—p. 319.
Effect of Epinephrine on Contraction of Striated Muscle in Warm-Blooded Animals. A. P. Bestuschew and E. N. Speranskaja-Stepanowa.—p. 324.
Cystic Kidneys in Relation to Vascular-Renal Insufficiency. H. Podgurski.—p. 332.
Relation Between Closely Coupled Extrasystoles and Extrasystolic Tachycardia. D. Scherf.—p. 375.
*Tuberculosis of Lung: Division of Vagus Nerve. A. W. Ponomarew. —p. 403.
*Rôle of Nervous System in Development and Course of Tuberculous Processes. I. A. Pigalew and G. S. Epstein.—p. 417.
Galvanism of Human Skin. H. Regelsberger.—p. 438.
Glass's Method for Quantitative Determination of Bilirubin in Serum. Schang Chuen Li.—p. 452.
Effect of Parathyroid Extract on Rest Nitrogen, Uric Acid and Creatinine Contents of Blood Serum. K. Hajós and R. Mazgon. —p. 459.
*Albuminuria in Nephrosis. S. Rusznyák and L. Németh.—p. 464.
Uric Acid Content of Gastric Juice of Normal and of Diseased Stomach. H. Lucke.—p. 468.

Uric Acid Content of Gastric Juice in Hyperuricemia. H. Lucke. —p. 483.
Mode of Origin of Blood Pressure Variations of Third Order. E. A. Spiegel and K. Taga.—p. 494.
Path in Spinal Cord of Centripetal Stimuli from Pelvic Nerves. J. I. Abuel.—p. 500.
Polyuria Following Stab Wounds of Corpus Striatum and Adjacent Portion of Brain. R. Reynolds and E. Spiegel.—p. 504.
Mobilization of Lead Under Influence of Potassium Iodide and Sodium Bicarbonate. S. Schachnowskaja.—p. 513.
Alkali Reserve in Experimental Uremia. A. Hartwich and E. Bissinger. —p. 527.
Mechanism of Liberation of Antiprothrombin in Blood Following Injection of Witte's Peptone. M. von Falkenhausen.—p. 535.
Action of Intravenous Injections of Serums of Various Kinds of Animals. M. von Falkenhausen.—p. 543.
Immunization of Central Nervous System Against Diphtheria Intoxication. N. Nikitin and A. Ponomarew.—p. 551.

Tuberculosis of Lung: Division of Vagus Nerve.—By division of a vagus nerve in rabbits infected with tuberculosis, Ponomarew demonstrated that the tuberculous focus is a source of poisons that injure primarily the vagal nerve centers. The result of this intoxication is a disturbance in the normal functioning of the nerve elements, which manifests itself at the periphery by a disturbance in the trophic condition of the tissue and a lowering of its resistance. The result is a vicious circle: the tuberculous area in the lung injures by its toxic products the nerve cells, and the dysfunctioning of the nerve cells produces at the periphery a disturbance in the trophic condition of the lung tissue and a lowering of its resistance. By a division of the vagus nerve on the side of the infected lung, one prevents an intoxication of the vagal nucleus by the tuberculous focus and the development of a segmental pathologic condition; the nerve centers of the other lung remain healthy and exercise their normal function of maintaining the trophic condition and cellular resistance of the lung tissue. By division of the vagus nerve on the side of the healthy lung, one does not prevent the development of the segmental pathologic condition but one does interrupt the passage of the disturbed nervous influences from the injured centers to the lung. Therefore division of either vagus nerve limits the development of the tuberculous process in the infected lung and at the same time protects against the passage of the infection to the other lung.

Rôle of Nervous System in Development and Course of Tuberculous Processes.—Pigalew and Epstein describe experiments in which they found that in animals in which both vagus nerves had been divided the intra-abdominal injection of B C G cultures or of virulent tubercle bacilli was not followed by as severe or as extensive tuberculous infection as it was in control animals. They also report that unilateral division of the vagus nerve in the neck protected both lungs against tuberculous infection.

Albuminuria in Nephrosis: Mechanism of Development.—Rusznyák and Németh believe that the albuminuria that occurs in nephrosis is caused by an increased permeability of the glomerulus membrane. The functional disturbance in this disease is therefore not limited to the tubule epithelium but involves the entire parenchyma of the kidney.

Zeitschrift für klinische Medizin, Berlin

112: 477-688 (March 24) 1930

*Cardiac Decompensation: Dietetic Treatment. K. Eimer and W. Voigt.—p. 477.
Lactic Acid Content of Blood in Health and in Disease. K. Dresel and F. Himmelweit.—p. 528.
Fluorine Content of Blood in Hemophilia. F. Hoff and F. May.—p. 558.
Decreased Number of Erythrocytes in Arterial Blood Following Enteral Administration of Water. O. Klein and W. Nonnenbruch.—p. 568.
Mutual Relations Between Creatine and Carbohydrate Metabolisms. E. Koplowitz.—p. 584.
Theory, Practice and Results of Nonspecific Diagnosis. V. Schilling. —p. 596.
*Relation Between Erythropoiesis and Number of Thrombocytes in Blood. R. Duesberg.—p. 626.
Electrocardiographic Observations in Typhoid. M. J. Arjeff and R. R. Tigi.—p. 641.
*Diabetes Mellitus: Effect of Combined Intravenous Injection of Levulose and Subcutaneous Injection of Insulin on Ketonemia. O. Pucsko.—p. 661.
*Id.: Effect of Peroral Administration of Levulose, Alone and in Combination with Injections of Insulin, on Ketonemia. O. Pucsko.—p. 677.

Cardiac Decompensation: Dietetic Treatment.—According to Eimer and Voigt, a diet of raw fruit and vegetables produces a marked excretion of water and salt in persons with circulatory disturbances. Although this action lasts only two or three days in healthy persons, in persons with cardiac disease it persists until all the water and sodium chloride depots of the body have been emptied. Although almost all kinds of circulatory insufficiency may be influenced favorably by dietetic treatment with raw fruits and vegetables, the best results are obtained in cases in which there is marked peripheral hydrops. The authors state that this form of treatment should be tried in all cases of cardiac decompensation in which digitalis proves ineffective and in all cases in which marked intestinal disturbances are present.

Relation Between Erythropoiesis and Number of Thrombocytes in Blood.—In experiments on rabbits, Duesberg found that there was a close relation between erythropoiesis and the number of thrombocytes. The nuclear nature of the thrombocytes and their microscopic relation to the erythrocytes was confirmed by the use of Schilling's fixation method.

Diabetes Mellitus: Effect of Combined Intravenous Injection of Levulose and Subcutaneous Injection of Insulin on Ketonemia.—In several young persons with severe diabetes mellitus, Pucsko performed the following experiments: (1) control experiment, (2) intravenous injection of 20 cc. of a 50 per cent solution of levulose, (3) intravenous injection of 20 cc. of a 50 per cent solution of levulose and subcutaneous injection of 40 units of insulin one and a half hours later, (4) subcutaneous injection of 40 units of insulin and intravenous injection of 20 cc. of a 50 per cent solution of levulose intravenously four hours later, (5) intravenous injection of 20 cc. of a 50 per cent solution of levulose and subcutaneous injection of 40 units of insulin immediately afterward, (6) intravenous injection of 20 cc. of a 50 per cent solution of levulose intravenously and subcutaneous injection of 40 units of insulin four hours later, (7) simultaneous intravenous injection into the right and the left arm of 10 cc. of a 50 per cent solution of levulose and 20 units of insulin, (8) intravenous injection of a mixture of 10 cc. of a 50 per cent solution of levulose and 20 units of insulin, (9) subcutaneous injection of 40 units of insulin, and (10) intravenous injection of 20 units of insulin. He found that, whereas levulose administered alone did not change the ketone content of the blood, when given in combination with insulin it sometimes caused a primary increase and a secondary, marked decrease of the acetone and beta-oxybutyric acid.

Diabetes Mellitus: Effect of Peroral Administration of Levulose, Alone and in Combination with Injections of Insulin, on Ketonemia.—In several persons with diabetes, Pucsko performed the following experiments: (1) peroral administration of 10 Gm. of levulose in 50 cc. of warm fluid, (2) peroral administration of 10 Gm. of levulose and subcutaneous injection of 40 units of insulin two hours later, (3) peroral administration of 10 Gm. of levulose and subcutaneous injection of 40 units of insulin four hours later, (4) subcutaneous injection of 40 units of insulin and peroral administration of 10 Gm. of levulose four hours later, (5) peroral administration of 10 Gm. of levulose and subcutaneous injection of 40 units of insulin immediately afterward, (6) subcutaneous injection of 40 units of insulin, and (7) control experiment. On the basis of his observations the author concludes that, although when given alone levulose has only a slight antiketogenic action, when given with insulin it decreases the ketone content of the blood and urine, particularly when the combined treatment is used over a long period of time.

Zeitschrift für Krebsforschung, Berlin

31: 1-104 (March 15) 1930

*Metal Salt Treatment of Tar Cancer. L. E. Walbum.—p. 1.
*Rat Tumor Filtrate: Inoculation Experiments. H. Loewenthal and E. Wibeau.—p. 30.
Isolation of Infectious Agent of Rous Sarcoma. H. Loewenthal. —p. 32.
Rôle of Metastatic Skin Nodules for Cytologic Investigation of Human Tumors. B. Lipschütz.—p. 35.

Tumors in Domestic Fowl. E. Malke.—p. 47.
Precancer: Three Stages. H. Stahr.—p. 67.
Cancer Statistics for Leningrad. M. N. Wilinski.—p. 72.
Changes in Permeability of Cells Following Roentgen Irradiation. M. A. Magath.—p. 95.

Metal Salt Treatment of Tar Cancer.—Walbum describes experiments that he performed on hundreds of mice with tar cancer to determine the therapeutic value of metal salts. He first used salts of manganese, lead, palladium and silver. None of the cancer mice treated with salts of manganese, lead and palladium recovered, but in 3 of the 51 treated by means of injections of silver nitrate the cancer (demonstrated microscopically) disappeared completely. The author then gave injections of silver nitrate to 136 of 225 mice with tar cancer, using 89 of the animals as controls. In 14 (10.3 per cent) of the mice treated with silver nitrate, the cancer disappeared and did not recur.

Rat Tumor Filtrate: Inoculation Experiments.—Loewenthal and Wibeau found that, whereas from 70 to 100 per cent of rats inoculated with Flexner-Jobling tumor developed cancer, in not one of a large number of rats inoculated with a filtrate of the tumor was the inoculation successful. Attempts to transmit Jensen sarcoma by means of inoculations of a filtrate of the tumor were likewise unsuccessful.

Zentralblatt für Chirurgie, Leipzig

57: 833-896 (April 5) 1930

Hypernephroma Diagnosed as Cholecystitis. E. Liek.—p. 834.
Experiences with Transperitoneal Incision of Bladder. A. Gridnev.—p. 835.
Muscular Contraction of Knee Joint as Symptom of Obturator Luxation of Hip Joint. B. Zypkin.—p. 837.
Spinal Anesthesia (Lumbar): Improved Technic. R. Demel and J. Burke.—p. 838.
*Injury of Intestine. W. Kramer.—p. 861.
Intestinal Obstruction Caused by Incarceration in Tear in Mesentery. J. H. Hommes.—p. 862.
*Strangulation Ileus Caused by Tuberculous Mesenteric Lymphadenitis. K. Mischel.—p. 865.
*Surgical Treatment of Inguinal Hernia. V. S. Perpiñá.—p. 866.
*Twenty Thousand Stones in Gallbladder. Dchahombany.—p. 875.

Injury of Intestine: Intramural Separation.—Kramer relates the case of a man who received a jagged wound of the abdominal wall in the right inguinal region from a buzz saw that flew out of its fastenings after striking a knot in the wood being sawed. When he was seen by Kramer, about 30 cm. of intestine was protruding from the wound. On examination he found that the intestinal mucosa had been torn loose from the muscular and serous coats without any tear of any part of all the intestinal walls. There were no other symptoms, either subjective or objective. Kramer resected 60 cm. of bowel and made an end to end anastomosis. Complete recovery resulted.

Strangulation Ileus Caused by Tuberculous Lymph Node.—Mischel's patient, aged 8, was admitted with a diagnosis of acute appendicitis. At operation the appendix was slightly injected but not inflamed. In the mesentery of the ileum, 15 or 20 cm. above the ileocecal valve, was found an enlarged lymph node, the size of an apple, from which a band extended over to the cecum. A loop of bowel had been caught under this strand and had caused the obstruction. The child's personal history was unimportant, but a history of tuberculosis on the mother's side was elicited.

Modification of Herniotomy.—Perpiñá has modified the usual method of operating for inguinal hernia by suturing the stump of the sac to the anterior surface of the abdominal rectus muscle underneath the fascia. The skin incision is the usual one, except that it is extended nearer the median line and not so far outward toward the anterior superior iliac spine. The sac is exposed and treated in the usual manner. Then a triangular flap of the anterior rectus fascia is raised, the tip being directed upward and toward the left. The stump of the sac is grasped with forceps, shoved upward into the inguinal canal and out (into the wound) at the inner opening, through the base of the aponeurotic flap of rectus fascia, so that it comes to rest on the anterior surface of the muscle. Then it is sutured in place and the fascia is sutured over it—back in place. Thus, a recurrence of the hernia is impossible.

Twenty Thousand Stones in Gallbladder.—This is said by Dchahombany to be the greatest number of gallstones on record; but the total weight of the mass was only 40 Gm. The largest stone weighed 2.5 Gm. About a dozen stones were of the size of a lentil; several hundred were no larger than a buckwheat seed and the remainder were of the size of a pinhead. Most of the stones consisted of pure cholesterol.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: 1429-1564 (March 22) 1930

Actinomycosis. R. R. Rochat.—p. 1430.
Difficulties in Treatment of Bone Fractures. W. F. Suermondt.—p. 1437.
*Diabetes Associated with Pernicious Anemia. J. Goudsmit.—p. 1447
Tuberculosis of Apex of Lung in Relation to Recently Acquired Knowledge of Onset of Tuberculosis. A. J. A. Koelensmid.—p. 1464.
Form of Erythrocytes After Vital Staining. W. J. H. Bungenberg de Jong.—p. 1472.

Diabetes Associated with Pernicious Anemia.—Goudsmit states that diabetes associated with the blood picture of pernicious anemia is rare. He succeeded, however, in collecting reports of eleven cases. A close connection between the two diseases could not be demonstrated, even with the help of statistics. However, the study of these combined disease symptoms is important, since they comprise two syndromes that are amenable to specific treatment (insulin, liver). Are there facts that justify the assumption that the condition is a special disease entity and not a chance combination? An inspection of the tables reveals that the condition is encountered chiefly in women (eight out of eleven cases). In five cases, symptoms of diabetes appeared first; in six cases, symptoms of pernicious anemia preceded. The symptoms of diabetes are usually typical; acidosis is rare. This speaks against the fatty acid hypothesis of pernicious anemia. The anemic symptoms are usually typical for pernicious anemia (blood picture, bilirubinemia, tongue). That sometimes diabetes and sometimes pernicious anemia appears first is against the assumption of a special disease entity. Also the rare occurrence of acidosis and the hypersensitiveness to insulin are characteristic for the author's "combination cases." These manifestations may, however, be the result of the combination as such and need not be regarded as typical for a special disease. A better insight into the genesis of pernicious anemia may possibly change the conception of these "combination cases."

Finska Läkaresällskapets Handlingar, Helsingfors

72: 181-259 (March) 1930

*Studies on Scarlet Fever. E. R. Nystén.—p. 181.
*Bilateral Artificial Pneumothorax. E. R. Schauman.—p. 196.
*Analogies in Picture in Otosclerosis and Juvenile Diseases of Epiphysis. F. Leiri.—p. 206.

Studies on Scarlet Fever.—Nystén found the Dick reaction as a rule negative in the eruptive stage of scarlet fever but usually positive in the so-called complication stage, which accordingly seems to him more probably to depend on certain variations in the amount of specific antitoxin in the blood than on suddenly released streptococcic toxins. In his experiments, strongly hemolytic and toxin-forming scarlet fever streptococci, in contrast to streptococci not from scarlet fever cases, failed to show spontaneous agglutination. In several cases there was typical agglutination of scarlet fever streptococci with scarlet fever convalescent serum. The complement binding and precipitation tests with scarlet fever convalescent serums, also with specific streptococci and their toxins, were negative, although all serums were taken before the forty-second day of the disease.

Bilateral Artificial Pneumothorax.—Of Schauman's nine patients with alternate bilateral pneumothorax, five improved; of the six with simultaneous bilateral pneumothorax, two improved. The unfavorable results are ascribed mainly to too great delay in instituting the secondary pneumothorax, leading to exhaustion and to development of extensive adhesions.

Analogies in Picture in Otosclerosis and Juvenile Diseases of Epiphysis.—Leiri asserts that many and important features are seen in both disorders. He expressly states that mechanical irritation, while it plays a significant part in the development of otosclerosis, is no more the primary cause in otosclerosis than in juvenile diseases of the epiphysis.

Hospitalstidende, Copenhagen

73: 85-110 (Jan. 23) 1930

Enumeration of Blood Platelets. P. Windfeld.—p. 85.
Osteosynthesis with Absorbable Material. E. Dahl-Iversen.—p. 90.
*Fatal Hemorrhage Following Erosion of Internal Carotid Artery: Case. K. K. Ortmann.—p. 95.

Fatal Hemorrhage Following Erosion of Internal Carotid Artery: Case.—Ortmann reports a case of perforation of the internal carotid artery with formation of a false aneurysm in the parapharyngeal space and spontaneous perforation into the nasopharynx, resulting in fatal hemorrhage.

73: 111-138 (Jan. 30) 1930

*Origin of Lymphosarcomatosis and Relation to Other Leukemias in White Mice. C. Krebs, H. C. Rask-Nielsen and A. Wagner.—p. 111.

Lymphosarcomatosis in Irradiated White Mice.—Krebs et al. describe a lymphatic leukemia in white mice, seen particularly in strongly irradiated animals, and transferable from generation to generation, but only in universally irradiated animals. Anatomicopathologically, the spontaneous as well as the induced cases appear sometimes as lymphosarcomatosis or leukosarcomatosis, sometimes as lymphadenoses. Many indications point to a close relationship between this disease and human leukemia. "Lymphomatosis infiltrans" (leukemica and aleukemica) is suggested as a neutral designation for the condition.

73: 189-216 (Feb. 13) 1930

*Metal Salts Therapy. L. E. Walbum.—p. 189.

Treatment of Tar Cancer in White Mice.—Walbum states that of 136 mice with tar cancer, fourteen, or 10.3 per cent, were cured by the injection of silver nitrate in doses optimal at the time of injection, according to the individual animal's reaction ability. No recurrences have been observed.

Hygiea, Stockholm

92: 225-288 (March 31) 1930

*Pneumonoconiosis with Especial Regard to Silicosis. W. Mascher. —p. 232. C'cn.
*Mediastinal Emphysema with Secondary General Extension as Complication in Pulmonary Tuberculosis: Case. S. Berg.—p. 272.

Pneumonoconiosis with Especial Regard to Silicosis.—Mascher states that pneumonoconiosis can usually be diagnosed by thorough clinical and roentgen examination. In the early stages, diagnosis solely by clinical examination is impossible. In many cases without subjective or objective symptoms, roentgen examination reveals extensive changes. Clinically, dyspnea is the most pronounced symptom, in advanced cases often dominating the picture. In the cases with old or more recent tuberculous foci there was no evidence that either the tuberculous processes or the silicotic changes were affected by the complication. As the incidence of the condition depends largely on the silica content of the dust inhaled and on the amount of the dust, strict prophylactic measures should be observed in all industries in which silica dust is produced. In addition, preliminary examination should be required of all workers, followed by periodic examinations, and pneumonoconiosis should be legally compensable as are other occupational diseases.

Mediastinal Emphysema with Secondary General Extension as Complication in Pulmonary Tuberculosis: Case.—In Berg's patient, who had had cirrhotic tuberculosis of the lungs for six years, an attack of coughing was followed by marked feeling of oppression, pain in the chest and feeble, rapid pulse. These symptoms soon diminished, as air forced its way from the mediastinum. Deep emphysema was palpated in the neck; roentgen examination showed distention of the intermuscular spaces in the neck and downward movement of air into the mediastinum. Increasing general subcutaneous emphysema occurred, with rising temperature; the face, the arms, and the trunk to the umbilicus became involved; the eyes were shut. Incision with blunt dissection along one side of the trachea, with drainage, was effective and the emphysema gradually subsided. The temporary abducens paralysis is ascribed to the upward pressure of air to the base of the brain.

Ugeskrift for Læger, Copenhagen

92: 251-270 (March 13) 1930

*Treatment of Wounds and Ulcers with Proteoses. S. Hansen and V. Schmidt.—p. 251.
Atypical Pain in Cholelithiasis. T. Eiken.—p. 255.

Treatment of Wounds and Ulcers with Proteoses.—Hansen and Schmidt report that treatment with proteoses, tried by them in forty-two cases, gave good results in plastic wounds and burns. The results in wounds from contusion, especially those with infection, were less satisfactory. In ulcers of the leg, few good results were attributable to the treatment.

92: 271-292 (March 20) 1930

*Variations in Blood Sugar During and After Splanchnic Anesthesia According to Kappis. G. Hagerup and K. Kelsted.—p. 271.
*Diaphragmatic Hernia with Symptoms of Incarceration. A. Sennels. —p. 274.
*Nongonorrheal Urethritis with Conjunctivitis and Arthritis. A. Kristjansen.—p. 276.
Treatment of Hallux Valgus. J. Boysen.—p. 278.
Calculations on Supposed Increase of Cancer in Provincial Cities. L. C. Stage.—p. 280.
Active Vaccination Against Tetanus: From State Serum Institute. S. Schmidt.—p. 281.
Extent of Pulmonary Tuberculosis Among Conscripted Soldiers. H. Heckscher.—p. 283.

Variations in Blood Sugar During and After Splanchnic Anesthesia According to Kappis.—Hagerup and Kelsted found that in the seven cases with splanchnic anesthesia (Kappis) and intercostal anesthesia, with procaine hydrochloride, the blood sugar on the morning of the day following operation was normal or nearly so, while in the case with ether anesthesia there was still a 30 per cent increase in the blood sugar.

Diaphragmatic Hernia with Symptoms of Incarceration.—Sennels reports the case of a boy, aged 8, with grave abdominal trauma followed by ileus-like symptoms of varying intensity. The diagnosis of hernia of the intestine protruding into the left side of the thorax was made only by roentgen examination.

Nongonorrheal Urethritis with Conjunctivitis and Arthritis.—Kristjansen says that his case of purulent urethritis following coitus, with bilateral purulent conjunctivitis and polyarthritis, particularly deserves attention, partly because of its absolutely venereal character as a link in a pseudogonorrheal endemic, partly because the diagnosis "nongonorrheal" in this instance is supported, not only by direct microscopy and examination of cultures, but by the consistently negative complement fixation reaction for gonorrhea. The practical importance of correct diagnosis of this condition is emphasized.

Upsala Läkareförenings Förhandlingar, Upsala

34: 773-916 (Sept. 1) 1929

*Chemical Investigation of Pulmonary Edema Fluid. G. Blix.—p. 787.
Prussic Acid Poisoning in Hydrocyanic Acid Disinfection of Residences and Rooms. C. Naeslund.—p. 793.
Theoretical Considerations on Inbreeding in Man. G. Dahlberg.—p. 849.

Chemical Investigation of Pulmonary Edema Fluid.—There was fairly close agreement in the composition of the edema fluid in the three examinations made by Blix in a case of cardio-arteriosclerosis with pulmonary edema. The fluid was of the transudate type with relatively low protein and ash content.

35: 1-102 (March 1) 1930

Apparently Toxic Effect of Pure Oxygen: Contribution to Question of Microrespirometric Method. G. Ahlgren.—p. 1.
Organization of Care of Tuberculous Persons in Upsala Province. U. Quensel.—p. 15.
*Surgical Treatment of Pulmonary Tuberculosis. G. Nyström and A. Beskow.—p. 41.
New Home for Chronic Patients in Upsala. U. Quensel.—p. 97.

Surgical Treatment of Pulmonary Tuberculosis.—Nyström and Beskow consider this treatment of great value in cases in which other treatment has failed or may be expected to fail. Further advance in the surgical treatment of pulmonary tuberculosis is looked for chiefly along two lines: more assured and individualized fixation of the indications for treatment and finer adjustment of the nature and extent of the operation to the individual case. The author gives 111 case reports.